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MANUAL
FOR
FIELD FORCE

OFFICE
SUPERVISING ARCHITECT
TREASURY DEPARTMENT

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REGULATIONS GOVERNING

THE

FIELD FORCE

OFFICE

SUPERVISING ARCHITECT

TREASURY DEPARTMENT

WASHINGTON
GOVERNMENT PRINTING OFFICE
1916

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REGULATIONS GOVERNING THE FIELD FORCE OF THE OFFICE OF THE SUPERVISING ARCHITECT.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING ARCHITECT,
August 22, 1916.

The instructions contained herein supersede previous instructions conflicting therewith.

JAS. A. WETMORE,
Acting Supervising Architect.

Approved August 22, 1916.

BYRON R. NEWTON,
Acting Secretary of the Treasury.

This book of instructions is for the information and guidance of field officers under the direction of the Supervising Architect of the Treasury Department, and until thoroughly familiar with its requirements such officers must refer to the book in every case when applicable and be governed accordingly, thus avoiding unnecessary correspondence and delay. On application to the Supervising Architect supplementary information on any official matter not fully covered hereby will be furnished.

It should be borne in mind that in many matters pertaining to the construction and equipment of Federal buildings the action of the office must necessarily be based alone upon the reports and recommendations of the field officer, who should therefore exercise the greatest care in making same.

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SECTION I.

GENERAL INSTRUCTIONS.

101. BOND.

Upon receipt of *letter of appointment* as a superintendent of construction of public buildings, the appointee must execute an official bond, with a corporate surety, or two or more individual sureties, in such sum as may be specified upon the form provided, for the faithful and proper discharge of his duties, and forward it to the department for examination, approval, and file. Officers furnishing a corporate surety must forward to the department the company's receipts for annual premiums.

The above requirements relative to bonds may be extended to field officers other than superintendents of construction, in the discretion of the Supervising Architect.

102. ASSIGNMENT.

At the proper time the superintendent will be assigned to duty and, as directed in the *letter of assignment*, he must subscribe to the oath of office and forward it to the Supervising Architect. Compensation will commence from date of oath, at a per annum rate, and continue (including Sundays and holidays) so long as his services are retained. (See Reassignment, 114.)

103. QUALIFICATIONS, ETC.

Superintendents of construction are the local representatives of the Supervising Architect. They are expected to obtain, through their own initiative and without unnecessary correspondence with the office, the completion of the works under their charge in accordance with the contract requirements and on contract time.

104. INEFFICIENCY.

Derelictions of duty, or evidence of lack of experience, or of intelligence, judgment, or tact, will be considered sufficient cause for change to a less important assignment, reduction in salary, or separation from the service.

105. COOPERATION WITH CONTRACTOR.

The best results and the prompt completion of the work according to the contract requirements can be obtained only through intelligent cooperation between the superintendent and the contractor. Superintendents must initiate such correspondence and conferences with the contractors as are found to be necessary to obtain satisfactory results. This includes reminders regarding submission of samples on dates specified, submission of shop drawings, the ordering and delivery of materials in due time and proper sequence, the employment of an adequate force, methods of laying out work, etc.

106. PROHIBITED ACTIVITIES.

The regulations of the department prohibit field officers from engaging in the private practice of architecture in any capacity, supervising the construction of private buildings or other enterprises, representing dealers in building materials, etc., or any similar activities.

107. OFFICE QUARTERS.

When the superintendent assumes his duties at a building and there is no local Federal building in which quarters can be obtained, bids for the rental of suitable office quarters are to be taken and forwarded to the Supervising Architect, with adequate explanations and specific recommendation, for consideration. If possible, the proposals should include heat, light, and janitor service; otherwise they should be accompanied by the superintendent's estimate of the monthly cost of such services. An office in the residence of the superintendent is not permissible, and in submitting proposals for office quarters the superintendent should state that the office is not a part of his residence, and state its distance from the Government building at which he is employed. Close proximity to the building is desirable.

If it is found impracticable or undesirable to rent an office, the superintendent should submit his recommendation to the Supervising Architect regarding the erection of a temporary office structure on the site, with detailed information relating thereto, including drawing, specifications, and estimate of cost.

If the contract provides for the erection of a temporary office structure, the superintendent should confer with the contractor and have such building constructed as soon as practicable. Meanwhile, the superintendent may submit a recommendation for the rental of temporary quarters.

108. OFFICE FURNITURE.

The superintendent should forward to the Supervising Architect bids, or, if this is impracticable, estimates of cost of such inexpensive articles of furniture as may be required for his official use, with a specific recommendation as to acceptance. Typewriting machines will be furnished by the office.

109. OFFICE SUPPLIES.

The superintendent will be furnished with all books, blanks, and other stationery required for his official use. Requisitions are to be forwarded to the Supervising Architect on the official forms (supplied on request) and in accordance with the regulations printed thereon.

110. CARE OF PUBLIC PROPERTY.

The superintendent will be held responsible for all furniture, supplies, etc., in his possession, and if anything is injured or destroyed through his carelessness he will be charged with the cost of repair or replacement.

111. SALE OF PUBLIC PROPERTY.

If it becomes desirable to dispose of any public property in his care, such as office equipment no longer required, the superintendent must first obtain authority from the department, submitting a detailed list showing the original cost, if possible, present condition, and approximate present value of each article.

If a sale is authorized, the articles must be appraised by a committee to be designated by the superintendent, consisting of three Government officials, who are to serve without compensation. Competitive bids, to be opened at a stated hour, are then to be invited by notice posted publicly and by circular letter, but not by newspaper advertisement. Bidders should be advised that no proposals received after the hour fixed for opening the bids will be considered, and that payments in the gross amount of the accepted bid will be required by money order on Washington, D. C., or draft on New York City, to the order of the disbursing clerk, Treasury Department.

Unless otherwise directed, the superintendent will transmit the bids to the department with his recommendation, and if one of them is accepted the superintendent will forward the proceeds of the sale to the disbursing clerk of the department (on the triplicate form provided with the letters of authority), and describe the

property sold and give name of purchaser, amount received, amount forwarded, and date of department letter authorizing the sale.

Should the committee of appraisal determine that any articles or materials are absolutely without value, a list of the same must be forwarded to the department with a copy of the committee's report for appropriate action.

112. UNAUTHORIZED EXPENDITURES.

Except for traveling expenses, duly authorized, field officers must not make any expenditure with a view to reimbursement, nor involve the Government in any obligation, without first obtaining specific authority from the department, unless in case of actual emergency, and then the facts must be fully set forth in the voucher containing the item. The expense is subject to disapproval and disallowance when not fully warranted by the circumstances. (512.)

113. EXPENSES IN CHANGING HEADQUARTERS.

When superintendents are transferred to new headquarters (this does not apply to temporary details) they will be permitted to incur reasonable charges for excess baggage, including books, papers, and official supplies, not exceeding 200 pounds beyond the railroad limitation; but no subsistence expenses will be allowed at the headquarters, a comptroller's ruling having cut off the time "not in excess of two days" previously allowed.

114. OTHER DUTIES AT TIME OF REASSIGNMENT.

If a superintendent, when transferred, is not at the same time relieved of all previous inspection assignments or details which would be inconsistent with his new assignment, he should report the fact immediately for appropriate action.

115. INTEREST IN CONTRACTS FORBIDDEN.

The superintendent, or any person employed under his direction, is forbidden by law to have any interest, direct or indirect, in any contract for the supply of material or labor, or in the hire of any vessel, vehicle, or team, or in any moneyed account whatsoever, in connection with work under the control of this department, nor is he allowed to make advances from his personal funds to contractors, their employees, or other public creditors, on account of material supplied, services rendered, or labor performed in connection with the work in his charge.

116. PERSONAL OBLIGATIONS TO CONTRACTORS, ETC.

The superintendent is forbidden to accept gratuities, borrow money, or place himself in any way under obligations to contractors, material men, or others interested in the contract. Failure to observe this regulation will be sufficient ground for separation from the service. The superintendent is also warned against placing himself under obligations to other persons in any way that may be justly a cause of public criticism, or of complaint to the department.

117. COOPERATION BETWEEN FIELD OFFICERS.

Supervising superintendents and inspectors are detailed to buildings in course of erection to examine the workmanship and materials supplied. It is their duty to confer with the superintendent in charge on all matters pertaining to the contract; to assist him in interpreting drawings and specifications; and to examine all records and data in the superintendent's files. It devolves upon the superintendent to furnish to these traveling representatives all information and assistance necessary to aid them in making a complete and rapid inspection of the work.

118. FILES ACCESSIBLE AT ALL TIMES.

The superintendent's files must be kept up to date, and, in order that traveling representatives of the department may have access to them at all times, the superintendent, when he is obliged to be absent from the building, should leave his files accessible to the local custodian, or to the postmaster if there is no custodian. (154.)

119. TRANSPORTATION REQUESTS.

Whenever practicable, "transportation requests" should be used when traveling and the printed instructions furnished therewith must be strictly adhered to. Fares under $1 should be paid in cash and accounted for in the traveling expense voucher.

Field officers should endeavor to anticipate their needs in the matter of transportation requests, so as to avoid the necessity of telegraphing the department for them.

If directed to perform service for another department, the transportation requests provided by this department should not be used.

120. MILEAGE AND TRIP TICKETS.

Mileage tickets or books, and the various kinds of multiple-trip tickets, should be used if the character and frequency of travel is such that a saving to the Government may be effected thereby. Such tickets or books should be obtained on a transportation request, describing the ticket or book on the face of the request by name, serial number, and ticket letter and number, and by number of miles or trips it contains. (This does not apply to inspectors.)

121. MONTHLY REPORT OF MILEAGE.

On the last day of the month a report must be prepared and forwarded to the Supervising Architect on forms provided for this purpose showing for the month the travel on mileage or trip tickets, the date of purchase of the same, and the number of miles or trips remaining unused. When all mileage has been used, the empty book must be promptly mailed to the office.

122. TRAVELING EXPENSES.

Traveling expenses are to be incurred only when specifically authorized by this office, and vouchers for same must be prepared on the forms provided for the purpose and forwarded to the Supervising Architect. (309, 311, and 907.)

123. TRAVEL REGULATIONS.

Department instructions relative to travel expenses are issued from time to time, and all employees traveling under official orders should have for their guidance a copy of the latest circular on the subject, which may be obtained on application to the office. (905.)

124. FORM OF TELEGRAMS.

Telegrams from field officers to the office should be signed with the surname only, and addressed as shown by the following example:

BROWN,
Treasury, Washington, D. C.
* * * * * *
ADAMS.

Telegrams on official business when addressed to officers or employees of the public service, whether connected with the Treasury Department or not, should be sent at Government expense whenever practicable.

125. RATES OF GOVERNMENT TELEGRAMS.

All telegrams at Government expense must be sent at Government rates, and should be indorsed "Official business. Government rates. Charge U. S. Treasury Department."

126. TWENTY WORDS THE MINIMUM PAID FOR.

The minimum number of words paid for in any case is 20, including address and signature (but not place from which sent and date of sending), and, therefore, the *complete* message may contain 20 words without causing the department any additional expense. Keeping this in view, telegrams should be as brief as is consistent with clear expression. The use of prepositions and of the articles "the" and "a" is generally unnecessary.

127. NIGHT TELEGRAMS.

Night telegrams must be used whenever they will as well serve the Government's interests.

128. "COLLECT" TELEGRAMS.

Telegrams to contractors and others not in the public service should be sent at Government expense only when the use of this means of communication is required in the public interest. All other telegrams must be sent collect.

129. TELEGRAMS NOT PREPAID.

If payment for telegrams sent or received is demanded, or if "charged" telegrams are addressed to or received from a source other than the department, the field officer must forward to the office a copy of the telegram and if payment was made by him a copy should accompany the voucher. Payment or reimbursement for such telegrams can be made only at Government rates.

130. CONFIRMATION OF TELEGRAMS.

Telegrams of importance must be confirmed by mail. A carbon or other copy of the original with the signed indorsement "Confirmation of telegram" and mailed without letter of advice will ordinarily suffice.

131. LEAVE OF ABSENCE.

The following regulations relative to leave of absence were issued by the Secretary of the Treasury on November 22, 1913:

132. ANNUAL LEAVE.

The Supervising Architect is authorized, in his discretion, to grant leave of absence, with pay, for 30 days, Sundays and legal holidays excepted, in any calendar year.

Inasmuch as there is more activity in building operations during the summer than the winter months, leaves of absence may be granted to superintendents at any time during the calendar year at which their services can best be spared. Leave may be granted even at the commencement of the calendar year for the whole 30 days, if this can be done without detriment to the public service. The Supervising Architect will exercise due discretion in determining whether the entire 30 days' leave shall be granted at the commencement of a calendar year to members of the field force who have been in the employ of the department for more than one but less than five years.

A superintendent of construction who has been in the service less than one year will be granted leave only at the rate of two and one-half days per month for the time he has been in the service.

133. LEAVE ON SEPARATION FROM SERVICE.

Superintendents leaving the service may be allowed accrued leave at the rate of two and one-half days per month. In the event an employee who has had five years' continuous service, and whose record is such as to make the case meritorious, is separated from the service, the Secretary of the Treasury will consider an application for an extension of such allowance not to exceed a total of 30 days during that calendar year.

134. ANNUAL LEAVE NOT CUMULATIVE.

The 30 days' leave of absence per year which may be granted to a superintendent is not cumulative and must be taken in that calendar year. If not taken it can not be carried to the next year.

135. LEAVE INVOLVING TWO CALENDAR YEARS.

All periods of leave must terminate within the calendar year in which the request is made. Leave can not be granted extending from one year to another.

136. SATURDAY HALF HOLIDAYS DURING LEAVE.

Superintendents on leave of absence during any period for which a half-day holiday on Saturdays has been granted by Executive order will be charged with the actual time absent on Saturdays, not exceeding four hours for any one Saturday.

NOTE.—The period in question is now from June 15 to September 15.

137. ADVANCE APPLICATIONS FOR ANNUAL LEAVE.

Except in emergencies, applications for leave must be made a reasonable time in advance of the date when the leave is desired.

138. TELEGRAMS REQUESTING LEAVE.

All telegrams referring to leave are at the expense of the applicants. Telegraphic requests for leave must be prepaid.

139. SICK LEAVE.

In case a superintendent has been absent from duty on account of sickness and has not been attended by a physician he must make a personal certificate stating upon honor the fact and cause of sickness, the precise date or dates thereof, and that during such period he was unable, by reason of such sickness, to perform the duties of his position; also the specific reason for not employing a physician. When attended by a physician he must obtain from him a certificate giving the physician's name, address, and dates of attendance, which must be attached to the superintendent's own statement, and all forwarded to the Supervising Architect for consideration. Application for sick leave must be made within five days after applicant's return to duty.

The Supervising Architect is authorized to grant sick leave not exceeding 10 days in any one year. If the 10 days is exceeded, he will submit the application to the department, with his recommendation. Sick leave will not be granted in advance nor for less than one day.

140. ABSENCE THROUGH CONTAGIOUS DISEASE, ETC.

Enforced absence of an employee on account of exposure to contagious disease, or absence necessitated by his attention to some member of his immediate family afflicted with a contagious disease, will be approved as sick leave when a proper certificate is furnished by the public-health officer, or other approved authority.

141. MISREPRESENTATIONS REGARDING SICK LEAVE.

Superintendents will be held strictly accountable for their statements as to inability to perform duty by reason of sickness. Proof of any willful misstatement, or of any attempt to mislead or deceive official superiors, directly or indirectly, in regard to an application for extension of leave on account of sickness will be sufficient cause for dismissal.

142. SUNDAYS AND LEGAL HOLIDAYS IN LEAVE.

Sundays and legal holidays, and holidays by Executive order applicable to employees out of Washington, whether for the whole or part of a day, will not be counted as annual leave, or leave without pay, where the absence *begins* or *ends* on a Sunday or a holiday. All such days occurring *within* a period of absence because of sickness or contagious disease, or without pay, will be counted. (See 132, for Sundays and legal holidays during leave with pay.)

143. LEAVE TO ATTEND COURT.

A superintendent who has been subpœnaed to attend court as a witness *for the Government* will be allowed special leave of absence with pay. If not serving as a witness for the Government, leave may be granted either with or without pay, and if the former the time will be charged against the annual leave. The office must be notified as far in advance as practicable of any contemplated absence from duty to attend court. If a superintendent is summoned for jury duty he must promptly notify the office, whereupon effort will be made to have him excused from such duty.

144. LEAVE WITHOUT PAY.

An application for leave without pay must be forwarded to the Supervising Architect, who will submit it, with his recommendation, to the Secretary of the Treasury. Such application must not form part of a letter requesting leave with pay, but must be a separate communication.

145. OFFICIAL TRAVEL DURING LEAVE OF ABSENCE.

Superintendents of construction who are on leave of absence with pay take the risk of having to return to their official station

at any time during its duration, if their services are needed there, and in obeying the orders of the proper authorities to return they must travel at their own expense. If thereafter the superintendent resumes his interrupted leave of absence, he likewise travels at his own expense. (Comptroller's decision, Aug. 8, 1915.)

146. TEMPORARY SUPERVISION.

When compelled to be absent from duty because of contagious disease, etc., or on account of a personal illness which threatens to be at all protracted, the field officer should promptly report the facts, or have them reported, to the office, giving information at the same time as to his address for the time being. The office will then give consideration to the necessity of making temporary arrangements for looking after the field officer's work.

147. ACCIDENTAL INJURY.

Whenever a field officer sustains in the course of his employment at the building such an injury as prevents him from performing work for one day or longer, he should report the fact to the office as soon as practicable, and report also the date when he returns to work.

When an employee of the contractor or subcontractor is injured in the course of his employment at the building to such an extent as to be incapacitated for work for more than one day, the superintendent must report to the office the facts as he knows them. Cases of death occurring within a period of one year after such injury and apparently resulting therefrom should be reported as soon as possible after knowledge of such death reaches the superintendent.

148. CRIMES ON FEDERAL SITES.

Offenses committed within the boundary lines of land ceded to the United States are triable in United States courts only. No State, county, or municipal officers or tribunals have any jurisdiction over such offenses.

149. CORNER MONUMENTS.

It is the policy of the department to require the vendor of a site to mark each corner of the site with a permanent monument. If these are to be disturbed during the progress of the work, bearings should first be taken so that they may be accurately relocated.

At the conclusion of the approach work the corner monuments must be left in plain view and substantially fixed in place. Where these monuments are in the sidewalk or in a driveway, they should be set flush with the surface of the paving.

150. ENCROACHMENT ON SITE.

Superintendents must not permit any unauthorized use of any portions of Federal building sites in their charge whether on, above, or below the surface. Unauthorized overhanging cornices, signs, awnings, balconies, bay windows, porches, walks, staircases, fire escapes, walls, etc., are among such forbidden uses. Roof signs—painted or electric—projecting over the Government property line are especially objectionable. The superintendent is not authorized to allow anyone to use habitually the Government land for access to other premises. Only the department may grant the privilege, and it generally expects a reasonable rental therefor, unless it is necessary for the convenience of the general public. The superintendent should promptly report any unauthorized uses.

151. SURFACE DRAINAGE.

The surface drainage of the Federal site must not be so disposed as to overflow the adjoining premises, nor should the owner of adjoining land be permitted to adopt such a course with respect to the Government site. If the contract drawings show such a condition, it should be brought to the attention of the office during the early stages of the work and not be deferred until work on the approaches is under way.

152. ATTACHMENT ON MATERIALS.

When the State law ceding to the United States jurisdiction over the Federal building site reserves the right to serve process within the site, attachments may be levied upon materials, equipment, etc., not the property of the United States, delivered on the site. In the event of any such attachment the superintendent will offer no objection to the removal of such material, equipment, etc., unless the material has been incorporated in the building, or the Government has made a payment on account of such material, or the eight-days' notice preparatory to terminating the contractor's right to proceed has been served. Under these circumstances the superintendent will notify the attaching officer that the material, equipment, etc., is claimed by the United States, and protest

both orally and in writing against its removal, stating that it has become Government property or that the Government has a prior or superior lien, as the case may be. At the same time the superintendent will telegraph the office a full report of the circumstances. Attachment of his material, equipment, etc., will not be accepted as an excuse on the part of the contractor for any interruption in the work.

153. NONPAYMENT OF BILLS BY CONTRACTORS.

If the superintendent receives a complaint of the failure of the Government contractor to pay, as agreed, for material and labor used in the performance of his contract, he will send the complainant a copy of Department Circular No. 45 (902) and forward the complaint to the office with such information as he may be able readily to obtain regarding the facts in the case.

154. TRANSFER OF BUILDING AND FILES TO OTHER CUSTODY.

When relieved from duty at the building the superintendent will, upon receipt of the necessary instructions, transfer the structure and other Government property and records in his care, and a complete and correct set of plans and specifications, to a custodian appointed by this department, or other designated official, take a receipt for same, and forward it to the office for file. A special cabinet will be supplied the custodian for these files. (601.)

155. CONVICT LABOR.

Attention is directed to the following Executive order of May 29, 1905, and superintendents must report any violations of the same:

"Whereas by an act of Congress which received Executive approval on February 23, 1887, all officers or agents of the United States, were, as a matter of public policy, forbidden, under appropriate penalties, to hire or contract out the labor of any criminal who might thereafter be confined in any prison, jail, or other place of incarceration for the violation of any laws of the Government of the United States of America:

"It is hereby ordered that all contracts which shall hereafter be entered into by officers or agents of the United States involving the employment of labor in the States composing the Union or the Territories of the United States contiguous thereto, shall, unless otherwise provided by law, contain a stipulation forbidding in the performance of such contracts the employment of persons undergoing sentences of imprisonment at hard labor which have been imposed by courts of the several States, Territories, or municipalities having criminal jurisdiction."

156. EIGHT-HOUR LAW.

Pursuant to the Executive order incorporated in each specification, the superintendent will promptly submit to the office a report (in duplicate), covering every violation of the eight-hour law on the work under his care of which he may have knowledge. If there are circumstances apparently justifying the act as an emergency they should be stated. These reports are transmitted to the Department of Justice for appropriate action.

Circular Letter No. 1, Office of the Supervising Architect, dated July 12, 1913, contains a copy of the law and of the opinions of the Attorney General thereon. (903.)

The department will not undertake to construe the eight-hour law nor to declare what constitutes an extraordinary emergency within the meaning of the law. The contractor must obtain such legal advice on this point as he requires.

The contractor may use several shifts of men on the work, provided each man is not employed more than 8 hours, consectively or otherwise, out of the 24. One shift may immediately follow another, or there may be an interval, as conditions may require. The only restriction is that out of 24 consecutive hours no one to whom the law applies shall be permitted or required to be employed more than 8 hours.

157. INFORMATION TO NEWSPAPERS, ETC.

There is no objection to field officers giving out information to newspapers or to the general public relating to matters of fact, such as the character of the building, the kind of materials to be used, the name of the contractor, the contract price and date of completion, modifications which have been authorized, arrangements for the laying of the corner stone, etc.; but they must take precautions against being drawn into local controversies about the work or any of its details. (504.)

158. POLITICAL ACTIVITY AND ASSESSMENTS.

The attention of field officers is called to a "Warning against activity in politics and the collection of political assessments or contributions by Federal officers and employees," issued as a circular by the United States Civil Service Commission.

The department especially cautions all the Federal employees under its jurisdiction against any violation of the laws, rules, and regulations appertaining to political activity and the illegal collection or payment of political assessments or contributions. Any violation thereof will be summarily dealt with.

SECTION II.

CORRESPONDENCE.

201. CLASSES OF LETTERS.

Letters signed by the Secretary, Acting Secretary, or Assistant Secretary should be referred to as "department" communications, and letters signed by the Supervising Architect or his assistants should be referred to as "office" communications. Field officers should use the personal form "I," not "this office."

202. REPLIES QUOTE DATE AND INITIALS.

The reply to a letter should always refer to its date, and in case of "office" letters refer also to "SA- " initials in the upper left-hand corner.

Receipt of routine official communications is not to be acknowledged. Acknowledgment when specifically requested or evidently necessary must be made with the least possible delay.

203. ADDRESSING SUPERVISING ARCHITECT.

Letters and reports to the Supervising Architect should be addressed:

SUPERVISING ARCHITECT,
Treasury Department,
Washington. D. C.

The word "Personal" should be added to the address when the matter is of a specially confidential nature. (124.)

204. OFFICIAL PAPER.

Official paper should be used for all official correspondence.

205. CONFIDENTIAL CORRESPONDENCE.

All official correspondence must be regarded by field officers as strictly confidential.

206. BRIEF ON LETTERS.

A brief indicating in the fewest possible words the subject of the letter must be placed in the upper left-hand corner of the first page of each letter sent the department, viz:

Subject: "Subdrainage."

207. LETTER-SIZE PAPER.

The correspondence of the Supervising Architect's Office is filed vertically, and all letters, reports, proposals, specifications, schedules, accounts, affidavits, documents, etc., intended ultimately for the office letter files should be on letter-size sheets, 8 inches wide by 10½ inches long.

208. DESIGNATION OF BUILDING.

The name of the Federal building to which a communication refers must be stamped or written in the upper right-hand corner of the first page of the letter, as: "Ogden, Utah, P. O". Rubber stamps for this purpose are furnished to field officers upon request.

209. INCLOSURES.

Inclosures must be properly enumerated in letters addressed to the office or department.

210. CARBON COPIES.

The superintendent must preserve signed carbon copies of all correspondence and copies of vouchers. Copies of other papers or of drawings prepared by the superintendent and forwarded by him to the department must be retained. While not absolutely necessary, it is advisable to retain copies of drawings or papers which the superintendent did not originate and which are forwarded the office or department for examination with the understanding that they will be returned. A record of such documents, however, must be maintained while out of the possession of the superintendent. Care must be taken that all carbon copies are clear and legible and that they contain all corrections made in the original.

211. LETTERS OF TRANSMITTAL.

Letters of transmittal must be sent as first-class mail, not rolled with drawings or specifications. Drawings or specifications should

be inclosed with and attached to the transmitting communication if they are on letter-size sheets or not too voluminous for flat folding.

Self-explanatory papers do not require letters of transmittal. This will ordinarily be true of reports, vouchers, etc. (See 305, relative to vouchers requiring a letter of transmittal.)

212. LETTERS OF RECOMMENDATION PROHIBITED.

All employees of the department are prohibited from writing official letters of recommendation in behalf of any firm, corporation, employee, or article of manufacture.

213. CUSTODIANSHIP CORRESPONDENCE.

The approaching completion of a building will give rise to correspondence relating to custodianship, furniture, supplies, etc. This correspondence must be filed separately, so that it may be turned over to the custodian as soon as he assumes his official duties.

SECTION III.

PREPARATION OF VOUCHERS.

301. GENERAL INSTRUCTIONS.

"General instructions" printed on the backs of the various vouchers must be strictly observed.

302. SAMPLE VOUCHERS.

Upon request, a sample set of vouchers, properly filled out, will be furnished, and must be followed closely, unless conditions require material changes in form or arrangement. (907.)

303. CERTIFYING VOUCHERS.

The superintendent must certify to all vouchers for payment on account of work or services in connection with the buildings placed under his charge by either regular or special assignment.

Unless otherwise directed, all vouchers must be forwarded to the office for payment. In certain cases a bonded official of the Government may be designated as a special local disbursing agent, to serve without additional compensation; and special instructions will then be issued to the superintendent regarding the handling of vouchers.

304. DETERMINING AMOUNT OF VOUCHER.

When estimating the value of work performed and materials furnished as a basis for issuing a voucher, the superintendent must be governed by the schedule prices agreed upon by him and the contractor, as described in paragraph 519 of these instructions. In no case must a voucher be issued in such *net* amount as will reduce the *gross* unpaid balance, including the retained percentage, of the contract price, to a sum less than would be sufficient to complete the building in case of default on the part of the contractor. It is not necessary to forward with a voucher for payment on account a statement showing the method employed in determining its amount. This should be shown on the monthly progress report.

305. RETAINED PERCENTAGE.

The accumulated retained percentage is not intended to cover any incomplete or defective items. An additional amount equal to the cost of completing or correcting these items must be retained pending the entire completion of the work, or pending the acceptance by the department of a suitable reduction in the contract price. The total contract price, less the accumulated retained percentage(usually 10 per cent), is not due until every part of the work is satisfactorily supplied and executed in every particular; and a voucher in such amount must, therefore, be accompanied by a letter of transmittal covering this point fully, and reporting seriatim on any defects or omissions reported in the final inspections of the various branches, and not previously reported as corrected.

As the checking of such a report in the office requires considerable time, pending which the voucher can not be passed, it is preferable not to issue a voucher for the full 90 per cent of the contract price.

306. FINAL VOUCHER.

See Final payment, 520.

307. SERIAL NUMBER OF ACCEPTANCE.

The serial number of the acceptance must be stated on the face of each voucher issued in partial or final payment on account thereof.

308. VOUCHERS FOR INDEPENDENT CONTRACTS.

Separate vouchers for work authorized to be performed independently of the main contract should be issued as soon as the work in question is satisfactorily completed.

309. WHEN TO ISSUE VOUCHERS.

Unless otherwise directed, or impracticable on account of the superintendent having two or more assignments, vouchers for payments on account of contracts should be issued on the last day of the month, except when this date falls on a Sunday or holiday. In such a case the voucher should be issued the previous day. When the superintendent is in charge of more than one building a few days' interval is expected, but it is preferred that all vouchers be

issued by the 5th of the month. The voucher in such cases should be dated back to the last day of the preceding month, and should not include work done subsequent to such date.

Vouchers must not be issued by superintendents in payment of their own salaries before the last day of the period for which the voucher is rendered, unless this day fall on a Sunday or legal holiday. In such a case, the voucher may be issued and forwarded to the department the previous day.

310. TRAVELING-EXPENSE VOUCHERS.

Vouchers covering reimbursement for traveling expenses of field officers should be submitted monthly. They may be sworn to before any postmaster, assistant postmaster, collector of customs, collector of internal revenue, or other officer of the Government empowered to administer an oath. No official of the Government is permitted to make a charge for administering an oath to another official or employee of the Government when the latter is acting in his official capacity.

311. CERTIFICATION OF VOUCHERS.

Salary vouchers of field officers will be certified at the department; all other vouchers (traveling expenses, rent, etc.) are to be certified before transmission to the department.

312. CHARGEABLE TO "GENERAL EXPENSES OF PUBLIC BUILDINGS."

The following classes of expenditures are chargeable to the annual appropriation "General expenses of public buildings":

(*a*) Compensation of field officers (supervising superintendents, superintendents, junior superintendents, and inspectors).

(*b*) Office rent, and all expenses incident to superintendence, including light, water, etc. (107.)

(*c*) Traveling expenses of field officers and of other officers and employees under orders from the department.

SECTION IV.

REPORTS.

401. PROGRESS REPORTS.

Superintendents are required to prepare progress reports, Form 8701, on the 1st day of each month next following that covered by such report, except when this day falls on a holiday or Sunday, or there is unavoidable delay in preparing the regular payment to the contractor. In such cases, the reports should be forwarded immediately after the value of the work done during the month is ascertained and the payment voucher issued. In no case should the transmission of the regular monthly report be delayed beyond the 5th of the month. These reports are to be prepared in quadruplicate and two copies forwarded to the office without letter of transmittal. A third copy is to be retained in the files of the superintendent. A fourth copy, *showing only the portion relating to payments made*, must be posted conspicuously in the superintendent's office, and free access thereto allowed subcontractors, or others having a financial interest in the contract. (518.) The reports must be prepared every month, even though there may have been no progress in operations on the building during the period covered.

Under the appropriate heading at the right of the report should be stated in a few words whether the work, as indicated by the headings, is progressing satisfactorily; and if not, the cause.

In the blank space under "Miscellaneous" may be inserted a statement of any unusual item that should be included in the cost schedule.

The total value of each branch of the work must be shown in the first column; the total of this column must account for the total contract price to date, allowing for additions and deductions. The different branches of the work, as they are completed, must be stated again in the second column as "completed work."

402. SEPARATE PROGRESS REPORTS FOR EACH CONTRACT.

A separate report should be transmitted for each separate contract on each building, except that independent contracts awarded to the same contractor in amounts less than $10,000 may be noted in the "Remarks" space. Such independent contracts must not be included in the total of the main contract.

403. ESTIMATING NORMAL PERCENTAGE OF COMPLETION.

When estimating the normal percentage of completion of a building all circumstances relating thereto must be carefully weighed, and the original schedule revised as circumstances demand. If the building is placed under contract at the commencement of winter the normal percentage should be greatly reduced for two or three months, with a corresponding increase during the balance of the contract time. An extension of time automatically requires a rearrangement of the schedule of percentage, because of the postponement of the date of reaching 100 per cent completion. An allowance of from one-fourteenth to one-sixteenth of the total time should be made for the assembling of equipment and material.

404. SCHEDULE OF NORMAL PERCENTAGES.

The following table contains a schedule of normal percentages for guidance in cases where no special conditions require modifications:

Normal percentage per month.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2	10	19	28	37	46	55	64	73	82	91	100	.....	.....	.....	.....
2	9	17	26	35	44	52	60	68	76	84	92	100	.....	.....	.....
....	7	15	23	30	38	46	53	61	69	77	85	93	100	.....	.....
....	7	14	21	29	37	44	51	58	65	72	79	86	93	100	.....
....	6	13	20	27	34	41	48	55	62	69	76	82	88	94	100

405. SAMPLE PROGRESS REPORT.

PROGRESS REPORT FOR THE MONTH OF MARCH, 1912.

Building, U. S. post office at Centerville, Ala.
Contractor, James Anderson: time limit, October 10, 1912.
Approximate date building ready for occupancy, October 10, 1912.

Branch.	Total value of branch.		Total value completed to last report.		Value completed since last report.	
	Dollars.	Cts.	Dollars.	Cts.	Dollars.	Cts.
Demolition—shoring						
Excavation	505	00	505	00		
Piling						
Footings	658	00	658	00		
Waterproofing—sub-drains.	382	00	382	00		
Brickwork	8,805	00	6,500	00	1,000	00
Granite work	7,862	00	7,000	00	375	00
Stonework						
Concrete	1,891	00	650	00	400	00
Structural steel and iron	900	00	600	00	225	00
Architectural terra cotta	1,318	00	700	00	300	00
Structural terra cotta	800	00			100	00
Roof covering	1,800	00				
Woodwork	6,092	00	300	00	200	00
Painting and glazing	1,400	00			50	00
Lathing and plastering	1,655	00				
Interior marble, terrazzo, etc	3,005	00				
Ornamental metal	1,000	00				
Hardware	775	00				
Approaches, curbs, grading, etc	2,223	00				
Miscellaneous	1,294	00	250	00	175	00
Plumbing	3,500	00	700	00	400	00
Gas piping	400	00				
Heating and ventilating	2,650	00				
Electric work	1,490	00				
Lighting fixtures						
Elevators—lifts						
Total	50,405	00	18,245	00	3,225	00

PER CENT COMPLETED.
Last month...31
This month...42
Normal.....41

EQUIPMENT.
Satisfactory.

FORCE.
Satisfactory. Force of brick masons increased on request of superintendent.

PROGRESS.
Satisfactory.

DELIVERY OF MATERIALS.

SAMPLES OVERDUE.

Sample.	Time overdue.

REMARKS, OR INDEPENDENT CONTRACTS.

.....
.....

Contract, including additions and deductions		$50,405.00
Less value of work not completed		28,935.00
		21,470.00
Less 10 per cent retained	$2,147.00	
Less payment on account	16,420.50	
		18,567.50
Amount of payment for month of March, 1912		2,902.50

J. M. PEPPER, *Superintendent of Construction.*

Treasury Department, Office of Supervising Architect.
Form 8701.

406. DATA FOR SPECIAL EQUIPMENT.

The superintendent should supply the office in ample time with data for the preparation of drawings and specifications for any special item of equipment, such as metal vault shelving, wire partitions, counters, etc. Sketches prepared by the superintendent should be signed by the officials interested to indicate their approval of the arrangement shown. The fact should not be overlooked that space for safes may be required in certain vaults. In this connection it should be noted that the building appropriation is available for the original installation of wire and other partition work and fixed equipment, such as shelving, counters, judges' desks, platforms, etc.

407. SCHEDULES OF FURNITURE, ETC.

At the proper time, schedules of furniture and other equipment for the building will be transmitted to the custodian or other local Federal official. The superintendent should cooperate with the latter, or other local officials, in completing these schedules and supply such other information as may be necessary.

408. DELAY IN LETTING INDEPENDENT CONTRACTS.

If the mechanical equipment, elevators, lifts, or lighting fixtures are not included in the construction contract, and if the superintendent should not receive notice of the letting of such contracts in ample time to secure the installation coincident with the completion of the building, he should bring this fact to the attention of the office.

409. DATE OF OCCUPANCY.

A special report must be submitted when the work has reached a stage of completion which indicates that the building will be ready for occupancy within four months, in order that the various departments interested may be notified. When determining this date, due weight should be given to the average progress, the advance during the previous two or three months, the apparent ability and disposition of the contractor to prosecute the work, the delivery of material, and similar considerations affecting progress. Another special report must be submitted six weeks before estimated date of occupancy so that the departments may be again advised.

410. DATE FOR FINAL INSPECTION, ETC.

At the same time the superintendent should advise the office regarding the date when the building will be ready for final inspection (if it has not already been made), and the probable date when the superintendent's services may be dispensed with at the building.

411. FINAL REPORT.

When a building is finally completed, or when a superintendent is relieved from duty in charge of a building that is practically completed, he must render a final report to the office, including a financial statement of the contract, the items of addition and deduction, and the total payments made thereunder. All existing defects under each contract must be given in detail in this report under appropriate headings, and incomplete items must be enumerated. A separate report must be submitted for each separate formal contract.

412. SCOPE OF FINAL REPORT.

An equitable settlement of the contract may depend upon the adequacy and accuracy of the superintendent's final report, which should supply all data necessary for the consideration of the office in the settlement of the contract, including the following whenever applicable:

(*a*) A statement that the work under contract is completed in a satisfactory manner, together with a seriatim statement of the correction of defects and supply of omissions previously reported as the result of inspection, referring specifically to the letters and reports in which the items are mentioned; or, if not completed, a schedule of items of defective or incomplete work, arranged by trades, and each item numbered.

(*b*) A statement whether all additions to the contract have been completed in a satisfactory manner, and all deductions properly accounted for.

(*c*) A synopsis of the "record of delays" segregated in accordance with paragraph 608. In complicated cases a full record of delays is to be transmitted.

(*d*) A financial statement, giving contract price, schedule of additions and deductions, total payments (but not schedule of monthly payments), and unpaid balance.

(*e*) Schedule and status of acceptances to the various contractors, made independent of their respective formal contracts. A similar statement regarding independent informal contracts.

(*f*) A statement showing *for the period of delay* the salary and expenses of superintendent and the amount of rent paid by the Government for all officials intended to be housed in the building when completed.

(*g*) In case the time limit has been exceeded, a statement in detail from the contractor regarding causes of delay, with such explanations as may be necessary. This statement should be obtained before the entire completion, as it is desirable to have it accompany the final report, but if this is not feasible the matter may be treated in a subsequent communication.

(*h*) The dates when building was sufficiently advanced to permit occupancy, when it was finally completed, and when it was finally occupied, either by the post office or any other important branch of the service. If not occupied at the time of submitting the report, the reasons should be stated and the estimated date of occupancy given.

413. LIQUIDATED DAMAGES.

The Comptroller of the Treasury on August 11, 1911, held that officers of the Government should not write into the records of a case, the contract for which provides for liquidated damages, any statement that no damages have been sustained. (Navy Department *v.* V. Clad & Sons; see also United States *v.* Bethlehem Steel Co., 205 U. S., 119.) Damages on account of delay have been mutually agreed upon in advance by the parties to the contract. When this is written into the contract it becomes a part thereof and can be changed only by the mutual consent of the parties thereto, or waived by the party upon whom the delay has been inflicted. This restriction, however, will not prevent superintendents from recommending the waiving of the damages, in whole or in part, accompanied by explanation and reasons therefor.

SECTION V.

CONTRACTS, PROPOSALS, PAYMENTS, AND APPROPRIATIONS.

501. PROCURING PROPER PROGRESS.

The superintendent must carefully and fully inform himself of the provisions of all contracts for work in his charge and see that they are executed in strict accordance with their terms. He must note the time within which each contract is to be completed, and warn the contractor if the work is not progressing with sufficient expedition to accomplish that result. If repeated efforts on the part of the superintendent are without effect, and it becomes apparent that the completion of the building will be materially delayed, the superintendent must so report to the Supervising Architect, with an explicit statement of all facts bearing upon the case. This report must state whether, in the opinion of the superintendent, the Government is in any way responsible for the delay; if so, to what extent, and the reasons on which such opinion is based. This course must be followed for each contract, in order that the eight days' legal notice of default may be served promptly by the department in case it is determined to terminate the contractor's right to proceed or to adopt any other method of protecting the interests of the Government. (649.)

502. INTERPRETATION OF CONTRACTS.

The superintendent must give careful attention to Treasury Circular No. 146, Secretary's office, approved by the Secretary of the Treasury December 31, 1877, which relates to the interpretation of public contracts. The circular follows:

"The following is based upon decision of the Supreme Court in the case of Hawkins *v.* United States (No. 700, October term, 1877), and publication is made for the information and guidance of officers in charge of public works, etc., under control of this department and all parties having, or seeking to have, dealings with the department through such officers.

"1. When a service of a better or higher grade than that required by contract is rendered upon the demand of a public agent, such demand being made upon an interpretation of the contract, the contractor can have no claim against the United States; nor will notice given at the time to an unauthorized agent of an intention to present a claim for additional allowance on account of such better service change the rule.

"2. When a contractor holds himself not bound to a performance which is sought to be required of him, he will immediately state his objections in writing to the agent in charge, who will forward it at once to the department, with his report thereon, that the question may be decided by the proper authority.

"3. Claims for compensation on account of materials or services will not be considered unless they are founded on some agreement, and when the agreement is claimed to have been entered into by an agent for or on behalf of the United States it must be shown that he had authority to make such agreement.

"4. Verbal agreements between the parties to a written contract made before or at the time of execution of the contract are in general inadmissible to vary its terms or affect its construction, the rule being that all such verbal agreements are to be considered as merged in the written instrument. Written contracts must, therefore, be held to express the intention of the parties at the time of contracting, and their plain and reasonable construction can not be diminished or enlarged by verbal testimony in explanation of such intention. Neither can an implied promise exist with reference to any subject matter that is embraced in an express agreement.

"JOHN SHERMAN, *Secretary*."

503. MODIFICATIONS FORBIDDEN WITHOUT AUTHORITY.

The superintendent must neither order nor assent to any modification in contract requirements without specific authority from the department. Every contract is entered into by the United States of America, through officials clothed with the necessary authority either by law or regulation. None but the latter may authorize a deviation from a contract, and such authorization must be in writing. A superintendent of construction is not one of these officials, and, therefore, he may not order any extras to the contract nor enter into any agreement for the supply of any material or labor not called for in the contract, nor approve or authorize any deviations from the contract requirements without having first obtained written authority from the department, except in the case of minor changes for structural reasons when no change in contract price is involved (712), and the authority to act in such cases must be exercised with great care.

504. CHANGES REQUESTED BY CITIZENS.

Citizens of communities in which public buildings are being erected, as well as officials who expect to be housed in the structure, frequently desire certain privileges or important changes in connection with the building, such as facing the building on another street, providing additional entrances, changing the facing material, elaborating the treatment in the public lobby, or permitting the use of the site as a public thoroughfare, etc. When such requests are brought to the attention of the superintendent by responsible officials or civic bodies, it is proper for him to transmit them to the department, but it is not proper for him to commit the department in any way. He should present both sides of the matter without bias.

Changes should be discouraged, generally, but if they are undoubted improvements they should be brought to the attention of the office well in advance of reaching the work which they will directly affect.

505. PROPOSALS FOR MODIFICATIONS.

When conditions arise which absolutely necessitate a change in a building (but do not require that the matter should be handled by telegraph), the superintendent should obtain from the contractor a proposal, in duplicate, for the work involved and forward it to the office with definite recommendation without previous request for authority to solicit such a bid. If the superintendent is of the opinion that proposals obtained are unreasonable, he should prepare a careful estimate of the real value of the work and forward same to the office, which may, if it concurs with the superintendent, exercise its right to fix a price and order the work executed. When such action is taken, the superintendent should give particular attention to the installation of this part of the work, and on its completion forward a detailed report of labor and material employed, which will indicate whether in fixing the price the department imposed any hardship on the contractor. The superintendent's report should include a statement of the amount he believes should have been allowed. The office will then readjust the matter, if such action appears equitable.

506. EXIGENCY ACTION ON CHANGES.

In case of an emergency requiring immediate action competitive bids should be obtained by the superintendent, and the amount

of the lowest bid and name of the bidder wired to the office, with a brief description of the nature of the emergency, and a statement that the bids are being forwarded. If the work in question modifies or is intimately related to work already under contract, it will be impracticable to obtain competitive bids. In such an event, the superintendent should wire the amount of the bid obtained from the contractor already on the work, together with his own estimate and recommendation, confirming these by letter. If the work is of such a character that no bid can be obtained, a statement to that effect should be wired the office with a request for authority to expend under exigency the amount which the superintendent estimates will be necessary.

507. ITEMIZED ESTIMATE.

When a proposal, whether with or without change in price, is forwarded by the superintendent it must be accompanied by his itemized estimate, giving quantities and costs of the material and labor involved, and stating whether conditions exist which would materially affect the cost, such as the necessity for obtaining material from a distant source, unusually high freight rates, etc. In case any of the material affected by the change has been delivered at the building, or placed in position, or even if the contractors claim that it has been manufactured, the fact should be stated, and also whether such material can be used in connection with the contemplated change. Careful attention to these instructions will make for prompt action upon the contemplated changes.

508. PROPOSALS IN DUPLICATE.

All proposals obtained by a field officer must be forwarded to the office in duplicate, accompanied by a copy of his letter to the contractor requesting the proposal and by originals or copies of any itemizations or subcontractors' bids which the general contractor may furnish the field officer.

509. SIGNATURES ON PROPOSALS.

Bids forwarded to the office by a field officer must be signed in autograph by the bidders. Typewritten, printed, or stamped signatures of individuals, firms, or corporations will not be accepted unless authenticated in autograph on the proposal by the contracting party, or by an authorized member of the firm, or officer of the corporation, submitting the bid.

510. ADDRESSING OF PROPOSALS.

It is preferable that the proposal sheet be addressed to the Supervising Architect even when it is required to be forwarded through a local official.

511. WHAT CONSTITUTES "PUBLIC ADVERTISING."

In accordance with section 3709 of the Revised Statutes, competitive proposals for all supplies of material and labor must be invited by public advertising unless a public exigency requires the immediate delivery of the article or performance of the service. The requesting of bids by means of only circular letters does not meet the statutory requirement regarding public advertisement, but the posting of an appropriate notice in a public place, supplemented by circular letter to persons qualified to bid, is sufficient.

The law (sec. 3828, Revised Statutes) permits newspaper advertising only after authorization by the Secretary, and no expenditure on this account can be approved except where such written authority has been given in advance.

512. SUPPLIES OR SERVICES AT HEADQUARTERS.

For any item of service or supplies required in connection with his headquarters, the field officer should submit an estimate of cost, and request authority to obtain proposals, unless the necessity for such service or supplies is so evident and usual as to warrant the assumption of favorable action by the officer. In that case he may forward the proposals (in duplicate) with his explanation and without a preliminary request for authority.

If an actual exigency exists which forbids either of the above methods, the supply or service may be obtained in the open market, and voucher and explanation promptly forwarded; but such expenditures will be carefully scrutinized and are subject to disallowance if not required by actual exigency.

The following excerpt from a recent departmental circular calling attention to the requirements of section 3709, Revised Statutes, in relation to "Expenditures under exigency" is to be carefully noted:

"As related to all expenditures incurred under exigency, no matter of what character, it must be clearly established that the expenditure was immediately necessary and could not have been foreseen by ordinary care; that injury to the public interests or damage to public property would have resulted from delay incident

to procuriug authority for incurring the expenditure or advertising for proposals. The nature of the emergency must be stated fully on the face of the voucher and such statement signed by the officer incurring the liability, in addition to the statements submitted in letters transmitting such vouchers."

513. OPENING COMPETITIVE PROPOSALS.

When authority is given for inviting proposals by public advertising (511), the field officer must open all proposals obtained at the hour named in the invitation therefor in the presence of at least one other officer of the Government, if practicable, and such of the public as may desire to attend. (Sec. 3710, Revised Statutes.) No proposals should be opened before the hour fixed therefor nor should any bid be received after the reading of the bids has begun. The superintendent must place his initials on each bid and request any Government officers present to do the same. After this, a schedule or synopsis of the bid or bids received must be prepared and signed by the field officer and by the other officer or officers present at the opening. The bid or bids, accompanied by the original copy of the signed schedule must then be forwarded to the department by the field officer with his recommendation and such information as he may deem of value in regard to the standing, competency, and responsibility of the various bidders. Copies of all papers must be retained for the field officer's files.

514. BID ACCEPTED BY SUPERINTENDENT.

If the requirements of the preceding paragraph are so modified as to authorize the field officer to accept immediately the lowest, or best, bid, he must promptly transmit to the Supervising Architect, for approval of his action, all proposals received, together with a copy of his letter of acceptance. This does not modify the previous instruction regarding the manner of soliciting, opening and scheduling the bids.

515. CERTIFIED CHECK WITH PROPOSAL.

Bidders are required to submit certified checks with all proposals amounting to $500, or over, and such proposals not accompanied by certified checks will not be considered. Unless otherwise stated, certified checks must be for 10 per cent of the amount of the bid, if the latter is for $500 or over but not in excess of $2,000. If the bid is for more than $2,000, the certified check must be for 2 per cent of the amount of the proposal. Certified checks must

be drawn to the order of the Treasurer of the United States and be forwarded with the bids, unless otherwise directed. While all checks are held at the risk of bidders, the right is reserved by the department to deposit immediately all certified checks for collection. The proceeds of such checks are subject to forfeiture in case of default. That matter, as well as the return of the checks to the bidders, will be attended to by the office.

The proceeds of the check of the successful bidder will be held to guarantee the satisfactory performance of the contract.

516. FORMAL CONTRACT.

Upon acceptance of a bid, the department will determine whether a formal contract with a bond or an additional guarantee deposit will be required. If a formal contract with bond is entered into the certified check submitted with the bid, or the proceeds thereof, will be returned after the approval of the bond. Otherwise the check or its proceeds will be *retained* until satisfactory completion of the work. The right is reserved by the department to require the submission of a bond in connection with informal contracts. Generally no bond is required if the accepted proposal is for less than $2,000.

517. PERIODICAL PAYMENTS.

Monthly or periodical payments during the progress of the work must be made in strict accordance with contract requirements.

518. MONTHLY ESTIMATES.

A copy of each monthly estimate, as indicated on the monthly report, shall be posted in the office of the superintendent in a conspicuous place where it shall be accessible to all parties interested in the contract, whether as contractors, subcontractors, material men, or their attorneys. (401.)

It is desirable to transmit to the contractor a copy of the monthly estimate, showing the amounts allowed on account of the different branches of the work, and to notify the contractor, at the same time, of the number of days, or the percentage, the work is below normal.

519. PAYMENT SCHEDULE.

As early as possible after assignment to a building, the superintendent, in conference with the contractor, must arrange a schedule of amounts covering each branch of the work contracted for. The

total of the amounts in the schedule must agree with the contract price. This general schedule, when completed, must be signed by both the contractor and the superintendent; one copy to be delivered to the contractor, one retained by the superintendent, and a third copy forwarded to the office for file. The monthly proportional payments will be based on this schedule, and unit rates in each branch should be fixed to whatever extent is practicable. When conditions make it necessary, the schedule must be revised, with the consent of the contractor, and a copy forwarded the Supervising Architect.

520. FINAL PAYMENT.

The final payment of the accumulated retained percentage is made only upon direct orders from the department. (305.)

When a contract calls for payment only on the completion of the work, no partial payment is to be made except upon special authority from the department.

521. MATERIALS NOT TO BE USED IN PART PAYMENT.

No article or materials belonging to the Government may be given or allowed in part payment for any supplies or work. (Sec. 3618, Rev. Stat. of the U. S.)

ANNUAL APPROPRIATIONS.

The following annual appropriations are under the control of the Supervising Architect:

522. GENERAL EXPENSES.

"*General expenses,*" which carries allowances for the salaries of the field force, their office rent, traveling expenses, and certain minor expenditures. (312.)

523. FURNITURE AND REPAIRS OF SAME.

"*Furniture and repairs of same,*" is available, among other things, for the purchase and installation of lighting fixtures in completed buildings and for repairs of same. It is not available for the purchase or installation of the outlet box to which the fixture is connected, or for any work back of the box. Therefore, if specifications call for both conduit work and lighting fixtures, the cost of

the lighting fixtures, either f. o. b. factory, delivered, or installed, must be segregated in all proposals. This appropriation is also available for the purchase of furniture, carpets, etc., and their repair as soon as the custodian assumes actual or constructive possession of such furniture, etc. It is available for repairing all old furniture owned by the United States, if that furniture is to be transferred to a building under the control of the department. It is also available, in the absence of a special appropriation (532), for moving expenses incident to transferring to a building under the control of the department all furniture in the custody of any department of the Government, regardless of whether the furniture was originally purchased by the Treasury Department; provided that when transferred it is owned by the United States. It is not available for transferring to a building under the control of the department any official books, papers, or records belonging to this or any other department.

The appropriation for furniture is not available in connection with marine hospitals, quarantine stations, mints, branch mints, and assay offices.

524. MECHANICAL EQUIPMENT.

This appropriation is available for repairs to and renewals of the mechanical equipment in all completed and occupied buildings, and for the original installation of any absolutely necessary mechanical or electrical equipment not provided for from the original special construction appropriation in any given case; but it is not to be used with the primary object of augmenting a special appropriation.

In both new and old buildings the office provides the conduit and wiring system and extensions thereof for all necessary purposes, including extensions for cancelling machines and other special appliances provided by the various departments. The cost of connecting the machine or appliance to the wiring system of the building is paid for by the department providing the appliance. This should be borne in mind when taking bids for such work and only the appropriate items sent to this office. (854 and 857b.)

This appropriation is also available, in the absence of any special appropriation that is applicable, for all the work incidental to making service connections, above or below the surface, inside or outside the property lines, including excavation, restoring surface of roadways, etc., and for the installation and repair of the mechan-

ical equipment in buildings standing on sites to be later improved by Federal buildings, provided the ownership of these structures has not been reserved by the vendors of the sites; and provided, also, the department has not leased them subject to the tenant making all repairs, etc.

525. REPAIRS AND PRESERVATION.

This appropriation covers all repairs to the structural part of the building, and repairs to the approaches, including down spouts, interior and exterior, to the point where they connect with the general drainage system of the building; wire baskets for down spouts; supply and installation of exterior lamp brackets and standards (exclusive of conduit and wiring to and in same, which is chargeable to "Mechanical equipment"); repairing sidewalks and curbings; the planting of trees and shrubbery inside of lot lines, etc. It is not customary to plant flowers. No authorizations are made from this appropriation for lamp standards, or any other work, outside of the Federal property lines, except that which is incidental to the repair and maintenance of sidewalks and curbs, but not gutters or street paving.

The appropriation is also available for fencing of vacant sites under the control of the Treasury Department, for filling in dangerous holes, and for cutting grass and weeds, but not for permanently improving these sites. Care should be taken to distinguish between these vacant and unimproved sites and the grounds surrounding completed buildings.

See "Mechanical equipment" (524) relative to repairing buildings standing on acquired sites, and the use of an annual appropriation to augment a special appropriation. This information applies equally to the appropriation for "Repairs and preservation."

526. OPERATING FORCE.

"*Operating force,*" from which payment is made for all personal (pay roll) services in connection with the care and maintenance of completed and occupied public buildings, their grounds and equipment. Supervising chief engineers and their assistants are paid from this appropriation. This appropriation is not available for marine hospitals, quarantine stations, mints, branch mints, and assay offices. (531.)

527. OPERATING SUPPLIES.

This appropriation is available for the purchase of fuel, steam, light, water, ice, lighting supplies, electric current for lighting and power purposes, removal of ashes, rubbish, and snow and ice; cutting grass and weeds in grounds of completed and occupied buildings; washing towels; telephone service for custodian force; and miscellaneous items for the use of the custodian force in the care and maintenance of completed and occupied public buildings and the grounds thereof, under the control of the Treasury Department, and in the care and maintenance of the equipment and furnishings in such buildings, exclusive of marine hospitals, quarantine stations, mints, branch mints, and assay offices; and for all miscellaneous supplies, tools, and appliances required in the operation of the mechanical equipment, subject to the following:

528. OPERATING TOOLS AND APPLIANCES.

Operating tools and appliances furnished as part of a general installation, such as boilers, engines, elevators, etc., or as a usual part of any appliance or fixture not chargeable to "Operating supplies," are paid for from whatever appropriation is chargeable with the balance of the expenditure. Any *renewal* of these tools, or any tools purchased separately, will be paid for from "Operating supplies."

529. REPAIR TOOLS.

Tools required by the building force in making repairs to the building, or to its equipment, are also chargeable to "Operating supplies;" the *material* used in making said repairs (and which becomes a component part of the thing repaired) being chargeable to "Repairs and preservation" or "Mechanical equipment," or whatever appropriation is naturally involved.

530. TOOLS FOR MARINE HOSPITALS, ETC.

The appropriation "Operating supplies" is not available for marine hospitals, quarantine stations, mints, branch mints, and assay offices. Therefore, tools required by the station or building force for repair of the structure or equipment are not a charge against any appropriation under the control of this office and the same is true of tools and appliances required strictly in connection with operation of the equipment unless they are supplied as a

usual feature of some appliance or equipment properly chargeable to an appropriation under the control of this office, in which case they fall under the general rule stated in paragraph 527.

531. PERSONAL SERVICES CHARGEABLE TO "OPERATING SUPPLIES."

Care must be taken to distinguish between *pay roll* services of employees engaged in the removal of snow, ice, rubbish, etc., which are payable from "Operating force," and *contract* services for the same work, which are payable from "Operating supplies." (526).

Personal services chargeable to "Operating supplies" can be employed under exigency in case of actual emergency, but only when the custodian's force is inadequate or not sufficiently skilled, and there is not sufficient time to take bids. The official ordering exigency work must be prepared to justify the action fully. (512.)

532. SPECIAL APPROPRIATIONS FOR MOVING.

If Congress provides a special appropriation for moving expenses incidental to the reconstruction, extension, rebuilding, etc., of an existing Federal building, that special appropriation is available for moving *all* public property (furniture, books, records, safes, etc.), from the building before it is remodeled and to it after the reconstruction is completed. It is available for moving into the remodeled building public property not taken from the building, provided it belongs to branches of the service which will be given space in the building as a result of its extension, reconstruction, etc.

Superintendents charged with the oversight of moving operations should inform themselves fully in relation to the appropriation charged with payment of the expense thereof. (523.)

SECTION VI.

CONSTRUCTION PRACTICE.

601. FILES FOR READY REFERENCE.

Office records, drawings, and other files in the care of field officers must be so maintained as to be convenient for ready reference. Superintendents of construction are expected to facilitate the work of supervising superintendents and inspectors by having all records ready for examination at any time. If not filed by subject, the contents should be carefully indexed. In addition to keeping the records of different contracts separate, as hereinafter indicated, it is desired that the records (superintendent's correspondence, record of tests, etc.) pertaining to the mechanical equipment be kept separate from the other records on a contract, so that inspectors of mechanical equipment may find what they need without going through the entire file. (820.)

Superintendents are required to enter modifications as soon as authorized upon a set of plans and specifications. On the completion of the building and the transfer of the superintendent, this corrected set is to be turned over to the custodian, with instructions to keep the same in a special files cabinet (which will be supplied to him) for the information of visiting inspectors. The receipt of the custodian is to be forwarded by the superintendent to this office for file.

602. CONSTRUCTION RECORD.

The construction record kept by the superintendent must include the following:

1. Record of contract and modifications.
2. Record of independent contracts.
3. Record of proposals for changes.
4. Daily job record or diary.
5. Commencement and completion of each branch of the work.
6. Record of delays.
7. Record of samples submitted and approved.
8. Record of drawings and details received.
9. Record of shop drawings approved.
10. Record of test made.

603. RECORD OF CONTRACT AND MODIFICATIONS.

1. The "Record of contract and modifications" must contain—
   A complete statement of each contract.
   All changes involving additions and deductions.
   All changes made without change in contract price.
   The net contract price to date.

604. RECORD OF INDEPENDENT CONTRACTS.

2. The "Record of independent contracts" must contain for each contract the information indicated in the foregoing section.

605. RECORD OF PROPOSALS FOR CHANGES.

3. The "Record of proposals for changes" must show all proposals for changes requested from the contractor or submitted to the office and not acted on.

606. DAILY JOB RECORD.

4. The "Daily job record" or "Diary" must show—

(*a*) The progress of the work, with such data as will form a brief history of the construction of the building and the conditions affecting its progress.

(*b*) The daily temperature and rainfall.

607. RECORD OF EACH BRANCH.

5. The "Record of commencement and completion of each branch of the work" must show the dates—

(*a*) When each branch should be ready for commencement.

(*b*) When it was actually commenced.

(*c*) When each branch should be completed.

(*d*) When it was actually completed.

(*e*) Also the causes of any delay in commencement or completion.

608. RECORD OF DELAYS.

6. The "Record of delays" must show all delays, including the date, cause, and portion of the work affected—

(*a*) Chargeable to the contractor.

(*b*) Chargeable to the Government.

(*c*) Beyond control of contractor or Government.

Under the above headings the following items, and any others the superintendent desires to include, should be covered:

(*a*) Delays chargeable to the contractor—
  (1) In commencing work.
  (2) In delivering materials upon the site.
  (3) Caused by failure to employ sufficient force.
  (4) Caused by failure to submit samples and shop drawings for approval, so far as known to superintendent.

(*b*) Delays chargeable to the Government—
  (1) Caused by suspension of the work by the superintendent or the department.
  (2) Caused by failure of the office to furnish drawings, models, or other information, or to approve samples and shop drawings within a reasonable time, so far as known to the superintendent.
  (3) Caused by discrepancy in drawings and specifications.
  (4) Caused by delay in acting on proposals, whether accepted or rejected.

(*c*) Delays beyond control of the contractor or Government—
  (1) Caused by unseasonable weather.
  (2) Due to strikes; the character of which should be explained.
  (3) Due to unforeseen conditions, such as unexpected difficulties in foundations.

This record must also show the dates on which the building is (*a*) sufficiently completed to be occupied, (*b*) actually occupied, and (*c*) finally completed.

A delay in one branch ordinarily affects the progress of the whole construction by a certain percentage, which should be estimated as accurately as possible. The entry in the record should be under two heads: (*a*) Number of days delay in the particular branch affected; (*b*) resulting delay to the building as a whole.

The superintendent need not hesitate to attribute any particular delay to the office or the department, if such is the fact. He must maintain all records with the strictest accuracy, but they are for the use and information of the department only, and their existence does not relieve the contractor of the responsibility of maintaining his own records and of submitting his own statement of delays and claim for extension at the time of final settlement; and the contractor should be so advised at the commencement of the work.

Superintendents should call special attention of the contractor to the paragraph "Delays" of the "General conditions" of the specification, in which it is provided that the contractor is en-

titled to one day in addition to the stipulated time for completion for each day's delay caused by the Government, provided that a written claim therefor is made *within 10 days* of the occurrence of such delay, i. e., within 10 days from the *beginning* of the delay. Such claims should be presented through the superintendent, who should forward them to the office with his report as to the facts in the case, and his recommendation. If the claim is allowed, due note is to be made in the record of delays. Unless the claim is presented by the contractor within the time stipulated he waives his contract right in this regard and the matter can not be considered until time of final settlement, when it will be taken up with other questions affecting settlement.

609. RECORD OF SAMPLES.

7. The "Record of samples submitted and approved" must show—

A list of samples to be submitted, this list to be made up at the commencement of the work, and to indicate the date when each sample should be submitted.

The date each sample is actually submitted.

The date of approval or rejection.

The dates of forwarding and approval (or rejection) of the identification samples.

610. RECORD OF DRAWINGS AND DETAILS RECEIVED.

8. The "Record of drawings and details received" must include—

Contract drawings.

Full size details.

Drawings and sketches prepared by the superintendent.

The class of work covered by each drawing and date of receipt of same.

Full size drawings, whether kept in rolls or folded, must have the number conspicuously marked on the outside. Drawings or sketches prepared by the superintendent (whether for transmittal to the office or to the contractor) must be numbered consecutively with the prefix S, have the title of the building thereon, and be initialed or signed by the superintendent. (This does not apply to repair work, Section VII.)

611. RECORD OF SHOP DRAWINGS APPROVED.

9. A separate record must be kept showing the dates of approval and receipt of shop drawings.

612. RECORD OF TESTS MADE.

10. The "Record of tests made" must show all tests required during the progress of the work, including the date of test, the work tested, the test applied, and the result.

613. FOUNDATIONS.

Upon the completion of the excavation, except trenches for footings, a report must be forwarded to the Supervising Architect covering the following points:

The condition of masonry buildings in the vicinity, noting whether any cracks or other evidences of faulty foundations or disturbances are apparent.

A description of the material through which the excavation was made, to elevation of bottom of footings, stating its nature for each foot of depth at the corners of building, and also at intermediate points if the character varies greatly between the corners. The conditions at bottoms of footings may be ascertained by sinking small pits before the trenches are excavated.

A detailed description of the soil on which the footings are to be placed with a statement whether the soil at that level varies under different portions of the building, and a definite recommendation regarding the maximum safe pressure per square foot. Unless the soil is evidently satisfactory, samples should be at once forwarded to the Supervising Architect's office. Samples of earth should always be forwarded in hermetically sealed cans in the natural condition, as nearly as possible, as regards moisture and consistency. Fruit jars should not be used for this purpose except as a last resort. The shipments should be made by parcel post or express; the packages to be marked: "Supervising Architect (Structural Division), Treasury Department, Washington. D. C."

Any pertinent statements not required by the above that may be of value to this office should be given. Unless it is evident that the soil under the footings will safely carry the load to be transmitted to it and is otherwise satisfactory, authority should be obtained to make test borings before placing the footings.

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The average depth below surface of ground to which the influence of frost is felt should be stated, if frost is a factor in foundation work in the locality in which a building is to be erected.

Inquiry should be made of competent persons regarding the approximate elevation of ground water and its probable variation with the seasons.

The information required by the preceding must be sent to the office before any work on the footings is commenced, in order that such action may be taken as the Supervising Architect may deem necessary. Unless assured of the stability of the soil, the superintendent must not permit the work to proceed until all questions are settled.

614. NECESSARY SUBDRAINAGE NOT PROVIDED.

If the contract does not require a subdrainage system, but, either from information obtained, or from conditions at the time the excavation is in progress or approaches completion, a subdrainage system appears to be necessary to insure a dry basement, the superintendent must immediately report this fact to the office and supply all the information required for the preparation of drawings or specifications, or both. In case the work is urgent, a proposal in duplicate should be obtained from the contractor and submitted with a recommendation in lieu of a report.

615. CONTRACTOR'S SUPERINTENDENT.

If the contractor does not within a reasonable time comply with the requirement of the specifications regarding the placing of a competent foreman on the work, the superintendent of construction must so advise the office. All instructions given by the latter in regard to the conduct of the work must be given to the contractor or his authorized representative, not directly to contractor's workmen; and failure to follow this regulation will render the field officer liable to discipline.

616. FENCE AROUND SITE.

If the contract does not provide for the erection of a fence around the building site and the superintendent considers one necessary, he should obtain competitive proposals, by circular letter and public posting of notice, for a fence of suitable construction and height, and forward the bids to the office with his explanation as to the necessity, and an estimate of cost.

No advertising will be allowed on a fence constructed around the site by either the Government or the contractor, except a neatly painted sign, or separate signs, giving the name of each contractor who has a *formal* contract (over $2,000) for any portion of the work.

617. CHECKING DRAWINGS AND SPECIFICATIONS.

The superintendent must carefully check up the drawings and specifications, and if any errors are found report them to the office for correction before the work has been affected thereby. This checking should be done during the progress of the excavation. (601, par. 2.)

618. REQUEST INSTRUCTIONS WHEN IN DOUBT.

Whenever the superintendent is in doubt as to the proper mode of executing any part of the work, he should present the matter to the office and await instructions.

619. SUPERINTENDENT'S INSPECTION OF WORK AND MATERIALS.

The superintendent, being responsible for the satisfactory execution of the work on the building, and for the Government property in his possession, must devote proper attention thereto; inspect all work as it progresses and all materials upon delivery; accept or reject materials according to his best judgment of what the contract requires, and see that all workmanship and materials employed are in accordance with the requirements of the drawings, specifications, contracts, and approved samples.

Inspection of materials should follow immediately upon delivery. Rejections of material after installation should not be necessary unless the work was done during the superintendent's absence, using material which he had no opportunity to pass on previously, or which suffered some damage or deterioration during or after installation, or when laboratory tests (623) demonstrate that installed material is in accordance with the approved samples

Rejection of materials or workmanship may first be verbal and a record made in the daily diary. If the contractor takes no action toward replacement within a reasonable time, the matter should be followed up by a letter, which must be specific, and a copy supplied to the contractor's representative on the work. If this is without result, the superintendent should make full report to the office, transmitting a copy of his letter of rejection.

Generally it should be possible to class the workmanship as either satisfactory or unsatisfactory. When satisfactory, although deviating slightly from the specification requirements for structural or other good and sufficient reasons, the superintendent is authorized to pass such minor modifications, provided they comply with the intent of the drawings and specifications, and are without additional expense to the Government. (503, 712, 822.)

620. MATERIALS "APPROVED" BY SUPERINTENDENT.

When the specifications or drawings call for "approved" material or methods, without providing for preliminary submission to the Supervising Architect, the superintendent shall have the authority to make such approval, subject to the material or method being in accordance with the intent of the plans and specifications.

621. UNSATISFACTORY MATERIALS.

With any report to the office regarding delivery or rejection of materials, the superintendent should forward samples of the materials in question, provided their size and character will permit them to be mailed. Such samples should be so marked or labeled as to identify them with the reports to which they relate. When samples can not be mailed, the criticisms must be very clear and definite, and supplemented by photographs or sketches if necessary to a proper understanding of the matter.

622. SAMPLES AND SHOP DRAWINGS.

The contractors are required to submit samples, shop drawings, etc., for approval either to the office or to the superintendent as called for by the specifications. Those required to be submitted to the office by the contractors must not be forwarded by the superintendents for them. Approved samples are to be retained by the superintendent until final inspection.

Shop drawings are submitted generally for the purpose of amplifying the contract drawings. They, therefore, must not contain material deviations from the contract requirements unless covered by the acceptance of a proposal. If it should happen that material deviations are shown and inadvertently approved, this does not relieve the contractor from his obligation to do the work in accordance with the contract requirements. However, as shop drawings are carefully checked in the office it may be assumed that generally they represent the approved method of construction. Exceptional cases should be brought to the attention of the office.

623. IDENTIFICATION SAMPLES.

In order to ascertain if the materials delivered on the ground, the quality of which can be determined only by laboratory test, are identical with the samples originally approved, the superintendent is required to forward to the office identification samples of the quantities called for in the specifications for the original sample. Packages containing such samples must be marked on the outside to show by whom sent, from what building, date, and contents; and a letter under separate cover must give notice of the shipment, with full information relative to the brand, manufacture, etc., of each material sent.

In forwarding samples care must be taken to pack them securely so as to avoid injury during transit and to insure their delivery in good condition. All vessels used in forwarding the samples must be absolutely clean and dry. Any dirt contained in the receptacle will have a bearing on the test. For the same reason sealing wax or rosin should not be used in sealing the receptacle.

In forwarding material like graphite paint or varnish, special care should be taken to stir the contents of the barrel thoroughly, in order that the sample may accurately represent the mass. If the superintendent suspects adulteration of such materials as varnish, paints, and oils by workmen during the progress of the work, samples should be taken from the pots used and twin samples from the original packages.

Use should be made of the mails as far as possible in forwarding samples. Government officials are authorized to use the parcels post in forwarding fourth-class matter under frank. When a sample is unsuitable for mailing it should be forwarded by express under Government bill of lading; not "collect."

624. TESTS NOT TO DELAY PROGRESS.

After samples submitted by the contractor have been approved, materials of the approved brands may be used on the work, which must not be delayed pending the test of identification samples unless the superintendent has good reason to suppose that materials are not in accord with the approved samples. Should it be found later by office tests that the materials delivered are not the same as those approved, the contractor will be held responsible. Identification samples should be sent to the office within a few days after delivery of the material at the building.

625. DEVIATIONS FROM APPROVED SAMPLES.

The small samples usually approved by the office are intended only to indicate the general character of the material in question, and superintendents are expected to exercise their judgment in allowing minor variations that may be reasonably expected as inherent to the material. This refers especially to stone and marble, in which slight veins or variations in color must be expected; and both the specifications and the approval of samples must be subject to a reasonable interpretation.

The approval of samples never covers such qualities as can be better described by drawings or specifications; for instance, a brick is approved for color and quality, but the size must be as required to meet the dimensions given on the drawings; and while hardware is approved as to mechanism, material, and finish, it is for the contractor to determine before submitting the sample whether it is of the size and shape that will fit the location.

626. EXPLOSIVES OR INFLAMMATORY MATERIAL.

Packages containing oil, varnish, paint, or any explosive or inflammable material, when shipped by freight or express, must have the label required by the Interstate Commerce Commission, and same will be supplied by the office.

Labels intended to be used for freight shipment may be used for express shipment when accompanied by a certificate on a white label measuring not less than 1½ by 3 inches, bearing the following words:

"This is to certify that the above articles are properly described, packed, and marked, and are in proper condition for transportation according to the regulations prescribed by the Interstate Commerce Commission."

.....
(Shipper's name.)

627. INSURANCE CARRIED BY CONTRACTOR.

The "Protection of work and materials" clause of the specifications requires contractors to maintain the necessary insurance on the work and materials incorporated in the building until its final acceptance, and superintendents should ascertain from the contractors at reasonable intervals the amount of insurance carried and require evidence of premiums paid. If the amount of insurance carried at any time is not adequate to cover the value of the work in place, the office should be so notified.

628. PROGRESS PHOTOGRAPHS.

The superintendent should see that the contractor forwards photographs as called for in the specifications, and that same are taken from the most advantageous points of view, and are of the size specified. Progress photographs must be taken every month whether any work is done or not.

In preparing the photographs there should be written on each negative the title and location of the building, the date on which, and the point of view from which, the photograph was taken.

For example:

U. S. Ct. H. & P. O.,
Keene, N. H.,
Dec. 31, 1915,
From northwest.

This should be scratched with a sharp-pointed instrument upon the lower left-hand corner of the film side of the negative in such manner as to make a permanent record upon the photograph itself. (It will be necessary to write backward on the negative in order that the inscription on the photograph may be legible.)

After the exterior is practically completed views should be taken of conspicuous portions of the details, for instance, main entrance, any special piece or ornament, etc., and, later on, well-selected views of the interior are to be submitted.

629. BOILERS FOR HOISTING APPARATUS, ETC.

The superintendent should see that the boilers used in connection with the hoisting apparatus, concrete mixer, etc., are located so the smoke will not disfigure any part of the building. If necessary a stack should be provided to carry the smoke above the building.

630. MANUFACTURERS' NAME PLATES.

On patented articles the identification plate with manufacturer's name and patent date, if required by law, shall be of a restricted size. Other name plates or identification marks of manufacturers, or others, which serve only for advertising will not be permitted unless so specified. This does not prohibit the manufacturer's name on mechanical equipment fixtures, valves, and hardware where it is desirable for ready identification of these articles in case of repair.

631. INSPECTION OF SCAFFOLDING, ETC.

With a view to the avoidance of accidents and loss of life during the erection of buildings the superintendent is required, without assuming on behalf of the Government any liability which properly belongs to the contractor, to maintain a constant oversight of the manner of erecting scaffolds, protection around hoistways, manner of installing material hoists, method of erecting derricks, manner of anchoring guy ropes, and the maintenance of all other apparatus furnished by the contractor which might in any way through negligence be the cause of accidents. He should call attention to defective or unsafe appliances, and if not corrected notify the office. This is not to be construed as authority to the superintendent to direct the manner of performing such work or to take any action which would tend to relieve the contractor of any responsibility.

632. POLES AROUND SITE.

Before the curb and sidewalk are put down superintendent should note whether the telegraph, telephone, trolley, or other poles around the building are in good condition and set symmetrically. If not, consult with the head of the company controlling the unsightly pole and endeavor to have it replaced or reset, as the case may be. The Government has no jurisdiction over such poles set outside of the lot line of a site, but the representatives of service companies are usually willing to put their property in good condition around Federal buildings.

633. APPLICATION FOR SERVICE CONNECTIONS.

When required by the local authorities or service companies, it is proper for the superintendent to sign for the United States the application slip of the contractor for making connections to sewer, gas, and water pipes, with the understanding that it does not obligate the United States for any damages or expense. City and State ordinances do not apply inside the lot line of a Federal building, and this should be explained to local officials who call attention to the fact that the specifications and drawings prepared in this office for plumbing, etc., do not conform to local requirements.

634. INSPECTION OF STRUCTURAL STEEL.

When shop inspection of structural material to be supplied for a building is authorized, the superintendent will be so advised and copies of the reports of such inspection forwarded to him as received. He must verify the reports as a check, and notify this office immediately regarding any discrepancy or evidence of negligent inspection.

In verifying the reports the material should be carefully checked off upon arrival at the building, and the given weights of shipment verified by comparison with the contractor's invoice.

The material must be carefully examined by the superintendent to determine the following:

(*a*) Whether every piece of material bears the stamp of the shop inspector, the location of same being indicated by a circle of white paint.

(*b*) Whether it has suffered injury in transit, it being of vital importance that the structural steel (especially the columns and trusses) shall not be bent, indented, or otherwise injured in handling.

(*c*) Whether the shop painting, especially the inside surfaces of closed sections, is satisfactory. Prompt action must be taken if the work shows any sign of rusting, or if it appears that the scale was not removed from the material before the paint was applied.

The specifications in regard to field painting must be strictly complied with. The paint on parts to be built into masonry must be dry before placing work in position.

Field riveting must be carefully inspected to make sure that holes match and rivets are tight. Where the holes do not match exactly and reaming is permitted larger rivets must be required.

Upper and lower sections of column joints are to be so faced that they will abut perfectly before and after riveting, as unless holes match precisely at column splices the upper and lower sections of the column will not bear properly.

The material called for must be placed accurately as shown, special attention being paid to beams and other members of uniform size which vary in weight.

When shop inspection is dispensed with the superintendent's inspection of the material delivered at the building must serve all purposes, and his examination must, therefore, be made with the greatest care and any deviation from the contract requirements immediately reported to the office.

635. WATERPROOFING AND ROOFING.

In order to insure satisfactory results in the installation of waterproofing and roof covering the closest attention is necessary on the part of the superintendent during progress of the work.

Failure of the waterproofing is usually due to punctures or lack of protection of the lap between the wall and floor waterproofing or neglect to caulk and seal pipe inlets.

The defects found in tin roofs are usually due to inferior workmanship in either the locking or the soldering, improper or insufficient grading of the gutters, or making the outlets too high. The use of acid instead of rosin as a flux is strictly prohibited.

636. TEST OF SUBDRAINAGE.

The terra-cotta subdrainage system around the building should be tested by pouring in several buckets of water at the high point and noting the amount of water discharged at the low point. A large decrease in quantity indicates pockets, broken pipes, or leaks in improperly constructed joints.

637. TESTS OF MECHANICAL EQUIPMENT.

The superintendent must see that specified tests of the mechanical equipment are made at the proper time, and certificates, duly countersigned by him, forwarded to the office, and that all required tests are made and found to be satisfactory before final inspection of mechanical equipment is requested. This includes the smoke test of plumbing and the third test of gas piping.

638. PRESSURE TEST.

When a pressure test is applied to piping a cap or plug should be loosened at all extreme ends of the system to make sure the pressure is applied to all parts of same.

639. TESTING SOIL, WASTE, AND VENT LINES.

When the tests of soil, vent, and waste lines are made with water the superintendent should examine the pipes and fittings after the water has stood in the system for at least one hour. He must not depend on examining the water level, for in a system with many vertical stacks it requires quite a large leak to lower the level of the water.

Wood plugs are not permitted to be used, as they are liable to swell and break the pipe or fitting.

640. TESTING PIPES IN CHASES.

All pipes in chases, or otherwise to be concealed before the general test is made, must be given the required test before being closed in.

641. LOCATION OF GAUGE IN MAKING HYDROSTATIC TEST.

When testing water lines or system the gauge should be placed on the system about midway between the lowest and the highest pipes, or, if placed in the basement, as is usual, an excess pressure over that specified should be applied so as to give the specified pressure at about half the height of the system, thus giving an average pressure in the system of that specified.

642. TESTING GAS PIPES.

A mercury gauge must be used in testing gas pipes, as a spring gauge is usually not sensitive enough to indicate small leaks. After the test the pipes should be opened at extreme ends to see if compressed air escapes, and also at a low point to be sure that the pipe is dry and salt water, etc., has not been introduced to make tight joints. During a one-hour test the mercury should not drop over one-fourth inch for a system supplied with a 2-inch or less main. In testing the system should be tested by floors or groups supplied by a 2-inch or less main or branch whenever possible. (Consult specifications for modification of this test for old buildings or extension work.)

643. LIGHTING SYSTEM.

The wires of the electric system should be spliced at all outlets before final inspection and test. After final test of gas piping has been made the fixtures can be hung. The specification in any given case will indicate whether or not connection to the wiring system of the building may be made in advance of final inspection and test of the latter, depending on whether more than one contract is involved.

644. INSPECTION OF LIGHTING FIXTURES.

In this branch of the work the superintendent should acquaint himself with the most essential requirements, as shop inspection is not always made.

Spun parts should be of weight specified, have sharp corners and true curves, fillets, etc. Castings must be true to design, clean, sharp, and crisp in detail.

Fixtures should hang at schedule heights, and when pendent push-button switches are required they must be connected to fixtures with reinforced silk-covered lamp cord. Attention should also be given to the glassware to see that it is of approved make and is supplied complete.

Fixture defects most common are light-weight materials, poor workmanship in construction and assembly, undersized fixture wire, careless execution of design and finish, and incorrect length of stems.

Special attention must be given to see that fixtures hang plumb, or set at right angles to the wall, as the case may be.

645. TESTING SPECIAL APPARATUS.

The tests to be made for special apparatus, including ventilating systems, air washers, humidifiers, refrigerating machinery, vacuum cleaners, elevators, motors, pumps, etc., are described in detail in the specifications and are usually made under the direction of a mechanical inspector; but preliminary tests of piping, etc., should be made before the final or operating tests are made, and the specifications should be carefully read to ascertain what tests are required.

646. TESTING BRICK-SET BOILER.

Heating boilers are required to be tested with water pressure before being "bricked in." The test is to be applied after boiler is set upon foundations; openings to be plugged and pressure to be applied gradually; air to be released from top of boiler as pressure is applied.

Manufacturer's or insurance inspector's certificate of tests at factory do not waive the test required at the building, as rivets and seams are frequently sprung in shipment. (827.)

647. HIGH-PRESSURE BOILERS.

The plates for construction of high-pressure steam boilers are inspected at the factory by an inspector detailed by the office, who stamps the passed plates "S. A." in monogram. This stamp, as well as the mill serial and heat-number stamps, must be so placed as to be visible after the boilers are assembled and installed. On delivery of the boilers the superintendent must report whether requirements have been met.

648. NONCONDUCTING COVERINGS.

Superintendents will note the distinction made by office specifications between application of nonconducting coverings for plumbing and for heating system. In the case of plumbing work the covering may be applied at any time the superintendent permits, provided the tests required to be made in his presence have been satisfactorily completed and reported on. In connection with the heating apparatus the application of nonconducting coverings is specified to be deferred until final inspection and test of the apparatus has been made by an inspector detailed by the office.

649. COMPLETION OF ALL MECHANICAL EQUIPMENT.

It is desired to make final inspection and test of all mechanical equipment at one visit of the inspector, and superintendents must endeavor to obtain completion coincidently of the plumbing, gas piping, heating, and conduit and wiring systems, the lighting fixtures (except connections when they are required to be deferred), and any special mechanical equipment; and when all are completed or when a definite date can be set obtain and forward promptly to the office the contractor's written notice of readiness for such final inspection and test. An inspector will then be detailed to perform the duty on the date fixed, or as near as possible thereto.

650. TEMPORARY HEAT.

When the heating apparatus is installed under an independent contract with the Government, the conditions under which the apparatus may be used for temporary heat are fully covered by the specification.

651. EIGHT DAYS' NOTICE.

When the contractor's conduct of the work is such that it is apparent that the eight days' notice preparatory to terminating his right to proceed will have to be served, the superintendent should notify the office.

If the department so decides the eight days' notice provided by the contract will be served on the contractor, and the superintendent will report, by wire, at the expiration of eight days from the time of serving the notice whether the contractor has taken steps to proceed with the work satisfactorily, and supplement such telegram by letter.

If the contractor or his representative should attempt then to remove from the site any materials or equipment intended for use in or upon the Federal building, the superintendent should forbid such removal and notify those concerned that such materials, equipment, etc., are claimed by the Government for use in finishing the contract work. (152.)

652. TERMINATION OF RIGHT TO PROCEED.

If at the expiration of eight days the superintendent reports that there is no improvement, the right of the contractor to proceed will probably be terminated by the department; and in that event the superintendent will be instructed to make the usual inventory and another field representative will be sent to the building to check the inventory and sign the same with the superintendent. This inventory should cover the following:

1. Value of work satisfactorily executed but not paid for. (This should include any retained percentage previously earned by said contractor.)
2. Value of acceptable material delivered but not installed.
3. Value of contractor's equipment, tools, etc.
4. A careful estimate of the cost of completing the contract.
5. Full statement of the contract account, showing the net price, payments on account, and the retained percentage.

NOTE.—The department accords to the contractor and his surety, or their representatives, the privilege to be present when the inventory is made and to be advised respecting the valuations fixed.

653. OPTION OF SURETY IN COMPLETING.

The contractor's surety is privileged (1) to complete the contract, either as surety or as an independent contractor; (2) to decline to complete; or (3) in case of a bankrupt contractor, where the contractor's trustee or receiver in bankruptcy declines to complete the contract the surety may complete the work upon obtaining an order from the court subrogating the surety to all the rights of the bankrupt contractor and the receiver or trustee, etc., and authorizing said surety to complete the contract in question.

654. WHEN SURETY COMPLETES AS SUCH.

When the surety upon application is permitted to complete the work of a defaulting principal without entering into an independent contract, payments will be made to such surety for the work

performed by it in the same manner as is provided in the original contract for payments to the contractor, except that the percentages retained from payments to the surety, together with the last estimate on the work performed by the surety, will be withheld until the equities between the contractor and his surety with respect to payments for the work so performed by the surety shall have been adjusted by agreement of the parties, or until some appropriate legal proceeding shall have been instituted under which the amount involved may be paid into court.

655. SURETY COMPLETING INDEPENDENTLY.

If the surety completes under an independent contract, the price therefor will be the *unearned* portion of the defaulting contractor's price.

656. SURETY DECLINES TO COMPLETE.

When the surety declines to complete, competitive proposals for such completion will be taken and an independent contract let. The defaulting contractor's contract will be appropriately charged to show the deficit, if any, and the surety will be liable to the extent of the penal sum of the bond for the excess cost. In such a case the tools, equipment, etc., seized from the defaulting contractor will be sold at the best price obtainable, and the amount realized from such sale will be credited on the defaulting contractor's account in reduction of his liability to the Government.

657 DEFAULTING CONTRACTOR MAY REMOVE TOOLS, ETC.

After the completion of the whole work, and as soon as it is seen that the United States will not have an unsatisfied claim against the defaulting contractor, he or his representative will be notified by the department that the tools, equipment, etc., seized by the Government are at his disposal; and the superintendent should then permit their removal by the contractor or by his authorized representative.

658. RESERVATION FOR ALTERNATES.

In accepting proposals for the erection of Federal buildings provision is frequently made for the acceptance of certain alternates when a certain point of advancement in the construction is

reached. In order to minimize the chance of overlooking these reservations superintendents are instructed to bring the matter to the attention of the office about 30 days prior to the date when the privilege of acceptance will expire.

659. BUILDINGS DESIGNED BY PRIVATE ARCHITECTS.

The following general instructions are to be noted in connection with the erection of Federal buildings for which the drawings and specifications have been prepared by private architects. The number of such buildings is limited, and the superintendents are directed to communicate with the office regarding any unfamiliar procedure.

Unless other directions are given, the superintendent of construction will exercise full control and authority; he will give the necessary instructions to contractors, and will certify and issue vouchers on account of the executed work.

Correspondence relating strictly to field work will be directed to the superintendent in charge. That relating to the interpretation of drawings, specifications, materials, full-size and shop drawings, and to questions regarding architectural or structural features, will be directed to the architects and copies furnished the superintendent.

The procedure to be followed in connection with the approval of samples will be set forth in the specifications.

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SECTION VII.

INSTRUCTIONS TO INSPECTORS.

NOTE.—In this section the term "inspector" includes supervising superintendents, inspectors, and superintendents acting as inspectors. Additional instructions for inspectors of mechanical equipment are contained in Sectiou VIII.

701. ON DUTY AT HEADQUARTERS.

Inspectors are expected to be on duty at their headquarters during the usual official day except when elsewhere by official instructions.

702. CLASSES OF INSPECTION.

Inspections are arranged to cover preliminary and final inspections. These two classes of inspection should be differentiated, in that the report of preliminary inspection need not enumerate the incomplete work, except in cases where it is desirable to make a demand for better progress, while the report of final inspection should enumerate defects, omissions, and all incomplete work (711). Final inspections will be made only on notice from contractors by letter or by telegram.

703. TRAVEL INSTRUCTIONS.

Except where the interests of the service require telegraphic orders, travel instructions will be by letter, an extra copy of which will be inclosed for the use of the inspector in submitting voucher. Unless the instructions designate a specific time for the performance of the duty, the inspector is required to proceed on receipt of orders, without unnecessary delay. The itinerary of an inspection trip should be followed as closely as possible.

If a superintendent receives instructions to make an inspection at some other point while there is important work which requires constant supervision going on at the building under his charge (for instance, pile driving, waterproofing, etc.), he should so advise the office by wire, in order that, if necessary, other arrangements may be made for the inspection.

704. TELEGRAMS REPORTING MOVEMENTS.

Inspectors are required to advise the office by telegram of the time of leaving headquarters and the time of leaving each point en route. These telegrams should be explicit as to the hour of leaving and the point of next duty. This is necessary so that the office may make a close calculation of the time of arrival at the next place, in order that additional instructions, if found necessary, may reach the inspector. If for imperative reasons an inspector is unable to continue his journey he must advise the office by wire so that appropriate instructions may be issued.

705. EXIGENCY EXPENDITURES BY INSPECTOR.

In carrying out official instructions it sometimes becomes necessary for an inspector to incur an expense for labor, or for rental of appliances found necesary in meeting an exigency. Such expenditures must be submitted on Form 8600 (not in the travel voucher), with due explanation. No allowance can be made for drawings.

706. EXIGENCY EXPENDITURES BY CUSTODIAN.

When employment of labor is immediately necessary in connection with investigations, the custodian of the building should be requested to have the work performed (under direction of the inspector), and to submit in the usual manner itemized exigency voucher, initialed by the inspector if the charges are proper and reasonable and the voucher is prepared and certified during his stay at the building. A statement on the subject should also be included in the inspector's report, and if the voucher has not been presented to him for check, the report should include a statement as to what would be a proper charge for the work.

707. SUBMIT REPORTS PROMPTLY.

Reports should be prepared and mailed at the point of duty if this can be done without undue inconvenience and expense; otherwise, at the first stopping point where practicable. In case special conditions require delay of the report until the return to headquarters, the inspector must make the preparation and forwarding of the report the first duty after his return.

708. DEFINITE RECOMMENDATIONS.

Reports should be as brief as is consistent with entire clearness, impartial, and without exaggeration. Indefinite statements should

be avoided and comments on trifling matters omitted. If a subject is of sufficient importance to be mentioned, it should be disposed of either by a statement of the action already taken or by a definite recommendation.

709. EXAMINATION OF RECORDS.

The inspector should examine the records, files, and correspondence of the superintendent, and report if the same are not kept in accordance with instructions.

710. FORM OF REPORT ON CONSTRUCTION WORK.

Inspectors should spend *sufficient* time in the examination of the building and the records to obtain a full and comprehensive knowledge of the situation. The substance of this should be incorporated in a clear and concise form in the report, which should always be on letter-size paper, and arranged in accordance with the following sample:

Inspection.]

BIDDEFORD, ME., *January 28, 1916.*

SUPERVISING ARCHITECT,

Treasury Department, Washington, D. C.

SIR: In compliance with instructions of the 6th instant, to-day completed inspection of the post office, Biddeford, Me.

The building is 65 by 80 feet; basement and one story; granite base; tapestry brick superstructure; limestone trimmings, cornice, and parapet; tin roof; fireproof throughout. (If an all-stone building give the name of the quarry.)

Superintendent E. A. Jones, headquarters, Biddeford, Me.

Contractor, The Miller Bros. Co.

Contract date, February 20, 1915.

Bond approved, March 6, 1915.

Time limit, July 20, 1916.

Contract price with additions and deductions to date, $65,759 (excludes $500 for lighting fixtures).

Payments to date, $34,781.40.

	Per cent.
Normal percentage of completion	64
Actual percentage of completion	63
The work is behind time	1

Probable date of occupancy, July 29, 1916.

711. PREPARATION OF REPORTS.

Reports, unless they contain a few items only, should be divided into two sections, as follows:

SECTION 1. General in character, giving the stage of progress, general conditions, information concerning any doubtful points in the second section, recommendations and the reasons therefor, and any other information of value to the office, including a statement as to whether the superintendent is performing his duties and keeping his records and files in a satisfactory manner. Only *one* copy of this section is desired.

SEC. 2. A list enumerating the defects and omissions which are necessary to be corrected, which should start on a separate page, and have the name of building and date of inspection noted at the top, with the autograph initials of the inspector. This list should contain neither comment nor recommendation; and the comments and recommendations in the main report (first section) should refer to the appended list by corresponding item number. If more than one contract is in force at the building, a separate set of lists of defects and omissions must be supplied for each contract; but one main report is all that is desired. It is intended to transmit one copy of the second section to the contractor with a demand for correction, and another copy to the superintendent of construction, two additional copies being required for the office files. This section is therefore required to be in *quadruplicate*.

As the final inspection is preliminary to the acceptance of the contract, it should be so thorough that no subsequent demand on the contractor for additional corrections will become necessary.

If the time limit has been exceeded, both the superintendent and the contractor should be interviewed in regard to the causes of delay; the record of delay should be examined, and the independent conclusion of the inspector regarding the responsibility of the contractor set forth in the report, with such recommendations as may be applicable.

712. VARIATIONS FROM CONTRACT.

While the superintendent has authority to permit and inspectors to pass minor changes for structural reasons so long as no change in contract price is involved, inspectors should bear in mind that a formal contract or agreement between the department and the contractor can not be modified in any material way without the consent of both contracting parties. Should any such changes

have been made, the inspector must submit a full statement with recommendation, so that the department may be in a position to take proper action under the contract terms.

If the variation appears equally good, or a betterment, the inspector should so state and add his recommendation as to whether the work should be permitted to remain as installed. If the variation represents inferior work but the department's interests would suggest retaining it rather than to disturb other work that might be affected, the facts should be stated and the difference in cost given as the basis for a deduction from contract price.

In the event that the work is installed in accordance with contract terms, but with unsatisfactory results, the circumstances should be explained and recommendation made as to the best means of accomplishing the results desired, with an estimate of the probable cost of the work.

If the superintendent has already taken action to insure the correction of any or all of the defects existing, the report should so state, in order that the office may neither make a new demand on the contractor in connection with an item which the superintendent is handling properly nor be led into forming an erroneous opinion of the superintendent's qualifications. Such items should, however, be reported in sufficient detail to enable the office to ascertain if the corrections are actually made, as the superintendent will be required to report on them with any other defects or omissions noted by the inspector.

713. RESPONSIBILITY OF SUPERINTENDENTS FOR IMPROPER WORK.

When cause for serious criticism is found, it is preferable that each point be discussed with the superintendent, giving him an opportunity to make such statements as he desires. The contractor or his representative should also be given an opportunity to make a statement whenever this may make for a better understanding of the situation.

Even though a superintendent may not always be initially responsible for allowing the installation of inferior workmanship and materials—as, for example, if it was done during his necessary absence—he can not disclaim responsibility for allowing the retention of such workmanship and material beyond the time when replacement or correction could be made without detriment to the Government's interests; and when such conditions are found to exist, the inspector's duty is to state the facts clearly and fully and place the responsibility where it rightfully belongs (619).

714. DEMAND FOR EXPEDITION.

It is important to inform the office whether or not it is advisable to make a demand for expedition, and, if so, in what branch and for what particular reason. It should be ascertained and clearly stated whether or not the contractors are to blame for any reported delay, thus avoiding demands from the office which are, in fact, unwarranted, although on the face of the report justified.

715. CHECKING ESTIMATES.

Whenever there appears to be a discrepancy between the point of advancement and the disbursements, the inspector should go over the estimates, bearing in mind that the Government desires to retain only the percentage required by the contract provisions.

716. INSTRUCTIONS OF INSPECTORS TO CONTRACTOR.

If inspections of work are made when the superintendent in charge is not present, the inspector should advise the superintendent, in writing, of any instructions he may have given the contractor at the time of the inspection; but unless such instructions by the inspector are required by an exigency, it is preferable that they be conveyed to the superintendent only, leaving to the latter the duty of instructing the contractor.

717. SUPERINTENDENTS INSPECTING.

Superintendents making inspections of buildings not under their charge are to be governed by the foregoing instructions; and should sign their reports as "Superintendent, inspecting."

718. REPORT ON REPAIR WORK.

Reports on repair work should be submitted in duplicate on the printed form furnished by the office for that purpose, a supply of which should be kept on hand by inspectors.

719. FINAL INSPECTION OF REPAIR WORK.

In the case of a final inspection, the inspector should state whether the work was completed on time, and if not, the causes for delay; whether the Government has been put to expense or inconvenience thereby; and whether the delay is chargeable wholly to the contractors, or whether the Government is in any way responsible.

If final settlement is recommended, the inspector should initial the voucher certified by the custodian (if it can be prepared while he is at the building), and state in his report that he has done so. In the event that there are some minor incomplete items which can be passed upon by the custodian, the inspector should request the custodian to report to the office by letter on the satisfactory completion of the work, forwarding the voucher at the same time.

720. MAINTENANCE REPORT.

Inspectors when inspecting Federal buildings in charge of a custodian should make a general examination of the buildings and grounds to ascertain if they are being kept in a satisfactory condition by the custodian force. If any deficiencies in this respect are found, a separate report marked "Maintenance" in the upper left-hand corner should be submitted. Otherwise, no report on the subject is necessary.

721. REPORT WITHOUT SPECIFIC INSTRUCTIONS.

The inspector should ascertain from the custodian whether any other contracts are in force, and report thereon, whether specifically directed to do so or not. These instructions do not apply to contracts of less than $500 (unless such work can be examined without loss of time), nor to mechanical equipment, nor to work already covered by instructions to another inspector, as indicated by information conveyed to the custodian.

722. REPORT ON GENERAL INSPECTION.

He will also bring to the attention of this office the necessity for other repairs, and report upon the desirability of any changes or repairs proposed by the custodian, keeping in mind that the demands upon the appropriations are so heavy that ordinarily only the most necessary repairs and renewals can be made; and if the work involved is of a minor character (say not exceeding $500), prepare the necessary specifications, and hand same to the custodian for the purpose of obtaining bids; otherwise forward specifications, with drawings if necessary, to this office for consideration.

723. REPORT ON NECESSITY OF REPAIRS.

In either of the above cases a report (in duplicate) must be submitted to the office, with definite recommendations, and an estimate of the cost of any work recommended. A copy of any specifications furnished the custodian (727) must accompany the report.

724. SPECIAL INVESTIGATIONS.

The preceding two paragraphs relative to the action to be taken in regard to repairs found necessary as the result of a "general" inspection, govern also, as far as applicable, the handling of repairs recommended as the result of a special detail to investigate the necessity of any indicated work. But in the latter class of cases special instructions will supplement the general instructions above, and the inspector will be advised whether to leave copies of his specifications with the custodian, or to forward all papers to the office.

725. SPECIFICATIONS AND DRAWINGS FOR REPAIRS, ETC.

Care must be taken to make specifications so complete and clear that there will be no uncertainty regarding the extent, location, and nature of the work.

All draft specifications forwarded to the office must be on letter-size sheets and double spaced. Only one copy is required by the office; but the report accompanying same should be in duplicate.

In any case requiring specifications to be furnished the custodian, the inspector should have as many copies typewritten as can be made at one process; one copy to be forwarded with the report and one retained by the inspector for his information, if he desires; the remainder to be handed to the custodian.

If the specifications left with the custodian for bids include work not chargeable to "Repairs and preservation," the amount included in the lump-sum proposal for each class of work must be segregated on the proposal sheet, so that it may be charged against the proper appropriation. (858.)

Sketches or drawings should be supplied when necessary. Drawings should be made on tracing paper with H–B pencil; or on tracing linen in ink when intended for duplication by the office.

726. SPECIFICATIONS FROM INSPECTORS' DATA.

When specifications are prepared in the office from data supplied by inspectors, if the cost of the work will be less than $2,000 a suitable number of copies is forwarded to the custodian for bids, 2 copies being kept for the files of the office. When the work will amount to $2,000 or over, about 20 copies are sent to the custodian upon which to invite proposals, and 6 copies are retained in the office for use in making up a formal contract, with bond, etc.

727. GENERAL CONDITION SHEETS, ETC.

All preliminary sheets, i. e., advertisement or invitation for bids, general conditions, Executive orders, and proposal sheet, should be omitted from specifications forwarded to the office for duplication, as they are supplied and attached here.

If the office instructions are to prepare specifications and leave copies with the custodian, or any other authorized agent, to take proposals, these preliminary sheets should be included and properly filled out, and the custodian requested to forward one copy of the specification to the office with the proposals obtained. (850, 851.)

If the estimate is $500 or over, the certified-check clause should be inserted in the general conditions. If the bid is $500 or more, but less than $2,000, a certified check for 10 per cent is required; and if $2,000 or over, a certified check for 2 per cent. Bids of $500 or over unaccompanied by checks will not be considered. (515.)

728. FOLLOW STOCK SPECIFICATIONS.

The office prepares specifications generally along certain lines and sequences, looking to as simple an arrangement as possible, so that bidders should have no difficulty in making up their bids therefrom. (See typical specifications, 730.) Inspectors should be governed accordingly in preparing specifications, so that they may be used by the office with but little revision. Unless the data are forwarded as herein directed, delay in the preparation of the specifications results, and at times the return of the papers for further data or explanations is necessary, all of which can be avoided. The sample sheet with heading "Repairing and cleaning plasterwork" should be used only as a guide in preparing typewritten copy of specifications for work of this kind. (In the office it is used only in preparing the rough draft.) Inspectors should make complete typewritten specifications governing the work in the manner shown on said sheet and in typical specification. Specifications prepared by inspectors not infrequently provide only for cleaning the plasterwork, and this has generally proved unsatisfactory, requiring a further expenditure for one or more coats of paint. Failure to get results from cleaning alone is usually due to the fact that deleterious matter of various kinds has adhered to the plaster-painted surfaces and become set through atmospheric changes; and consequently can not be removed by any cleaning method that will leave the entire surface in an acceptable condition.

729. CIRCULAR LETTER OF MARCH 18, 1913.

Copies of preliminary sheets, etc., and of stock specifications 1 to 8, inclusive, hereinafter referred to, were forwarded to superintendents and inspectors with circular letter of March 18, 1913. Compliance therewith, so far as possible, is expected, except as modified by later instructions.

730. STOCK SPECIFICATIONS.

The stock specifications for general repair work cover the following items:

No. 1. *Repairing driveways,* either with concrete and cement finish, or with concrete base and vitrified repressed blocks. State whether vitrified blocks or vitrified bricks can be obtained in the vicinity, also carefully note the character of materials in driveway and depth of bed, if it be of macadam, with a view to leaving a portion of the old base in place, if advisable, as a foundation for any new work to be placed thereon.

No. 2. *Metal weather-strips.*—Ascertain definitely the necessity for same and give the number of windows and doors to be so equipped. Generally, if strips are required, the entire building should be supplied with same. The office prefers to handle this class of work under separate contract with firms regularly so engaged.

No. 3. *Fly screens.*—The notations in the preceding paragraph apply also to this paragraph. Special attention should be given to the character of windows, whether hung sash or casement sash, and if the latter whether they swing in or out; also to the character of hardware, etc., which may affect the method of screening the windows. This applies more especially to casement or pivoted sash or transoms, as the office is not favorable to placing so-called bird-cage screens, which mar the appearance of a building. If weather-strips or fly screens are recommended, the inspector must prepare a schedule of doors and windows, giving approximate size of each, and leave such schedule with the custodian for use in preparing copies to be attached to the specification forwarded him from the office for proposals. Do not include fly screens, metal weather-strips, awnings, nor window shades, in specification for repairs, painting, etc.; refer to them in report only.

No. 4. *Hedges* around the grounds; usually as a protection against trespass and to take the place of fencing. Office standard specification provides for wire fence to protect hedge until same has attained good growth.

No. 5. (With drawing). *Standard directory* and *bulletin boards.*

No. 6. *Pointing stonework* of building.

No. 7. *New maple floor.*

No. 8. *Concrete* in connection with driveway, cement sidewalks, or cement floor. This may be varied to suit local conditions.

731. STOCK SPECIFICATIONS TO CUSTODIAN.

Specifications Nos. 2, 3, 4, and 5, enumerated above, are sent out with form letter direct from the office to the custodian, upon which proposals may be obtained. Therefore, all that is required from an inspector is that he supply the data in connection with such items as are called for thereunder.

732. VESTIBULE DOORS.

A standard scheme for inside double-door vestibules has been prepared. The advisability of using same must be carefully considered, and revolving doors recommended only where their use seems the best solution of the problem. Inspectors will, therefore, prepare a rough sketch showing work in place, giving dimensions of present openings, materials, etc., which will be sufficient for office use in preparing drawings and specifications for the vestibule.

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SECTION VIII.

INSTRUCTIONS TO INSPECTORS OF MECHANICAL EQUIPMENT.

801. SCOPE OF DUTIES.

The regular duties of inspectors of mechanical equipment cover three general classes of work:

(1) In connection with the construction of new buildings and the extension of old buildings, preliminary and final inspection of mechanical equipment and lighting fixtures.

(2) In completed and occupied buildings general inspection of mechanical equipment and lighting fixtures and inspection of repairs to same; periodic inspection of elevators; obtaining data and preparing specifications for repairs and renewals; annual inspection of high-pressure boilers.

(3) Shop inspection and test of various appliances.

General information in previous sections of this book constitutes a part of these instructions so far as applicable.

802. TRAVEL INSTRUCTIONS.

Except where the interests of the service require telegraphic orders, travel instructions will be by letter, an extra copy of which will be inclosed for the use of the inspector in submitting voucher. Unless the instructions designate a specific time for the performance of the duty, the inspector is required to proceed without unnecessary delay on receipt of orders.

803. TRANSPORTATION REQUESTS.

General instructions in regard to travel regulations are conveyed by departmental circulars. Inspectors should endeavor to anticipate their needs in the matter of transportation requests, so as to avoid as far as possible the necessity of telegraphic requests for same. If an inspector is directed to perform service for another department, he should not use transportation requests provided by this department.

804. ON DUTY AT HEADQUARTERS.

After the assignment of official headquarters, inspectors are expected to be on duty there during the usual official day except when elsewhere by official instructions.

805. DELIVERY OF TELEGRAMS AFTER OFFICE HOURS.

As soon as possible after assignment, arrangements should be made with the local telegraph company in regard to the delivery of telegrams after regular office hours. The inspector should request the company (in writing) to deliver to his house address, if same will be done without extra charge, all official telegrams received during the evening which can be delivered by 10 o'clock. It is not considered necessary to provide for later delivery, as messages will not ordinarily be transmitted by the office after 5 p. m.

806. TELEGRAMS REPORTING MOVEMENTS.

When traveling in pursuance of official instructions, inspectors are required to telegraph the office the time of leaving their headquarters city and the time of leaving such point on the route.

Such telegrams, whether from headquarters or from some point en route, should be full enough to give definite information as to (1) hour of leaving and (2) point of next duty. For instance: "Leave three this afternoon for Indianapolis." It is required that the office be informed of the hour of leaving any given point, so that close calculation may be made, when necessary, of the time of arrival at the next stopping place. The telegram should be sent as soon as the inspector knows definitely the hour of leaving, and in case of an early morning train can often be sent the night before.

807. FORM OF TELEGRAMS.

Telegrams from field officers to the office should be signed with the surname only and addressed as shown by the following example:

BROWN,
Treasury, Washington, D. C.

* * * * *

ADAMS.

All telegrams at Government expense must be sent at Government rates, and should be indorsed, "Official business. Government rates. Charge U. S. Treasury Department."

808. RATES FOR GOVERNMENT TELEGRAMS.

Information as to rates for Government telegrams is contained in order No. 8978, issued by the Post Office Department July 1, 1915, copies of which may be obtained on application to that department.

The minimum number of words paid for in any case is 20, including address and signature, but not place from which sent and date of sending, and therefore the complete message may contain 20 words without causing the department any additional expense. Keeping this in view, telegrams should be as brief as is consistent with clear expression. The use of prepositions and of the articles "the" and "a" is generally unnecessary.

809. "COLLECT" TELEGRAMS.

Telegrams to contractors and others not in the public service should be sent at Government expense only when the use of this means of communication is in the public interest. All other telegrams must be sent collect.

810. TELEGRAMS NOT PREPAID.

If payment for telegrams sent or received is demanded, or if "charged" telegrams are addressed to or received from a source other than the department, the field officer must forward to the office a copy of the telegram, and if payment was made by him a copy should accompany the voucher. Payment or reimbursement for such telegrams can be made only at Government rates.

811. NIGHT TELEGRAMS.

Night telegrams must be used whenever they will as well serve the Government's interests.

812. TELEGRAMS REQUESTING LEAVE.

Telegrams to and from the department, requesting or pertaining to leave of absence, can not be paid for by the department in view of the ruling of the Comptroller of the Treasury that such telegrams are not "official" business.

813. TELEGRAMS MODIFYING ORDERS.

When an inspector is on the road it may become necessary to send him further instructions, and acknowledgment of same should be included in his next travel telegram. The inspector should also make such arrangements as will tend to insure delivery to

him, at any time prior to leaving a city, of official telegrams sent in care of custodians or superintendents. These officials should be advised how delivery can be made up to train time, in case a telegram arrives after regular office hours, or after the inspector has left the building.

814. DELAYED INSTRUCTIONS.

When an inspector misses instructions at any point en route, that fact soon becomes apparent by reason of his failure to govern himself accordingly, and another course of action is then substituted by the office. Therefore, when a delayed telegram or letter of instructions reaches the inspector at a point not contemplated by the office (by forwarding from the place of address), he is not expected to act on same, the time for compliance having passed. In such cases he should notify the office promptly by wire; if he has reached headquarters remain there until the delayed instructions are canceled or amended; and if en route await a reply before proceeding further, and state in his telegram that such is his intention, unless this course would delay him unwarrantably, or unless he knows he can comply with the delayed instructions without unnecessary loss of time by traveling from some equally convenient point on his route on receipt of amended instructions. An inspector must use his judgment as to the place where he will await reply, making it clear to the office what he intends to do.

815. ABBREVIATIONS IN OFFICE TELEGRAMS.

To shorten telegraphic instructions certain simple abbreviations are used, such as the following:

"Final" means that the inspector is to make final inspection and test of all mechanical equipment in a new building or extension.

"Preliminary" means that he is to make inspection of all mechanical work installed to date in a new building or extension.

"General" means that he is to make inspection of all mechanical equipment in a completed and occupied building, including test of elevators and lifts, but not including internal examination of boilers unless external evidences point to the necessity of same.

"Letter" means that a letter will be found at the point to which the telegram directs the inspector to proceed, *not* at the point to which the telegram is addressed.

It is not ordinarily considered necessary to add in whose care the communication is sent, as it will always be in care of the custodian in case of an occupied building, and in care of the superintendent of construction in case of a new building or extension, if that official has headquarters at the building. When neither superintendent nor custodian is available, the inspector will be advised further.

816. MAIL REPORTS PROMPTLY.

Reports must be mailed at the point of duty unless official instructions direct otherwise, or unless such course would entail undue inconvenience and consequent expense. If held back until return to headquarters, the inspector must then make the preparation and forwarding of the report his first duty. Expedition is especially necessary in connection with reports of final inspection.

817. FORWARD REPORTS BY FIRST-CLASS MAIL.

Reports must be mailed in such manner as to insure handling as first-class mail. If specifications or drawings are small enough to be inclosed with report, that course should be followed.

818. FORWARDING DRAWINGS AND SPECIFICATIONS.

Drawings and bulky specifications should be forwarded under separate cover and that fact noted in the report, and the drawings and specifications properly marked with the name of the building, the inspector's name, and the date of the letter of transmittal; this to be on the back of drawings for purposes of identification.

Sketches made by the inspector as a basis for drawings to be prepared in this office should be signed with his name and title. Drawings prepared by him in accordance with office instructions should bear his initials only, without title.

819. SHIPPING TESTING INSTRUMENTS.

In returning testing instruments to the office the inspector should make a notation, which should not be so conspicuous as to interfere with the address, *across* the left-hand end of the address paster, indicating the point from which shipment is made and by whom shipped, and should give similar instructions in connection

with testing instruments left by him to be shipped back to the office by some other official.

All shipments must be made on Government bill of lading and letter promptly mailed. In connection with mailing bill of lading for instruments shipped back to the department, the address envelope should be marked "Mechanical division" in lower left-hand corner.

When reporting departure from a point where testing instruments provided by the office have been used, the disposition made of the instruments should be stated.

820. INSPECTION OF MECHANICAL EQUIPMENT.

Before proceeding to make preliminary or final inspection of mechanical equipment in place, in connection with construction of new buildings and extension of old buildings, the inspector should apply to the Government's superintendent of construction at the building for all information in connection with existing contracts and should carefully read the superintendent's official files for information as to acceptance of proposals, approval of materials and appliances, etc. It is the duty of the superintendent to have these data readily available for the inspector (601), and give him such assistance, both in acquiring familiarity with the contract requirements and in making the actual examination of the work, as will make for completion of the inspection in the shortest time consistent with thoroughness.

Work in place should be checked by the drawings and specifications and materials and appliances examined for make and quality.

Final inspection should cover a careful examination of all exposed work and include all tests not previously made and found satisfactory, whether specified to be witnessed by the superintendent or not.

As the final inspection is preliminary to the acceptance of the contract, it must be very thorough and contain definite recommendations.

If the time limit has been exceeded, both the superintendent and the contractor should be interviewed in regard to the causes of delay. The record of delay should be examined and the independent conclusion of the inspector regarding the responsibility of the contractor set forth in the report, with such recommendations as may be applicable.

821. PREPARATION OF REPORT.

The report submitted as the result of the investigation should be prepared in two parts:

(1) The *main* report, in duplicate unless otherwise directed. The name of the city visited, followed by the building abbreviation when necessary for identification (as Cairo, Ill., M. H.), should be written in the upper right-hand corner of the first page, and any inclosure should be similarly marked. At the upper left-hand corner the inspector's name and title, and a brief of the subject matter (as "General inspection," "Preliminary inspection," etc.), should be given. Then each branch of work should be taken up under its appropriate heading, giving (under such individual headings) general information, percentages of completion, all recommendations relative to acceptance of variations, etc., with a definite statement that "all work installed is in accordance with the contract requirements except as indicated in the accompanying list of defects and omissions."

(2) The list of defects and omissions, on a separate sheet, and in quadruplicate, one copy being intended for the contractor, one for the superintendent, and two for the office files. In the case of final inspections the list must contain all items necessary to the satisfactory completion of the equipment in every respect, and in case of preliminary inspections all items necessary to bring the equipment, so far as installed, into strict compliance with the contract requirements. The items should be numbered consecutively and be divided into groups by headings corresponding to the branches of the work.

Where required tests have not been made, such items should be included in the list of defects; but where the test has been made and the superintendent has not transmitted the certificate, reference to same should be omitted from the list and placed in the report.

Lists submitted with reports on final inspection should include the nonconducting coverings when same have not been installed.

All lists of defects should have at the top of each sheet the building name, the date of report, and the inspector's intitals (autograph). The list should contain neither comment nor recommendation; and the comments and recommendations in the main report should refer to the appended list by corresponding item number. If there is more than one contract, a separate *list* must be submitted for each, but one main report is all that is necessary.

822. VARIATIONS FROM CONTRACT.

While the superintendent has authority to permit, and the inspector to pass, minor changes for structural reasons, so long as no change in contract price is involved, inspectors should bear in mind that a formal contract or agreement between the department and the contractor can not be modified in any material way without the consent of both contracting parties. Should any such change have been made the inspector must submit a full statement with recommendation, so that the department may be in a position to take proper action under the contract terms.

If the variation appears equally good, or a betterment, the inspector should so state, and add his recommendations as to whether the work should be permitted to remain as installed. If the variation represents inferior work but the department's interests would suggest retaining it rather than to disturb other work that might be affected, the facts should be stated and the difference in cost given as the basis for a deduction from contract price.

If the work is installed in accordance with contract terms, but with unsatisfactory results due to poor design, or to the fact that the design is not suited to local conditions, the circumstances should be stated, and recommendation made as to the best means of accomplishing the result desired, with a statement as to the probable cost of the work.

The preceding information as to the general ground to be covered is applicable to both preliminary and final inspections.

823. PRELIMINARY INSPECTIONS.

The main report of a preliminary inspection should also contain the following information, under the respective trade headings:

(1) Work in place (general description).

(2) Incomplete work (general description).

(3) Percentage of completion of each branch.

(4) What tests have been made, and whether the required certificates have been forwarded.

(5) Whether the interests of the Government require demand to be made for expediting any part of the work.

The "list" submitted with the preliminary report should not contain any reference to "incomplete" work, as no demand is made on the contractor at that time in connection with work which is to be taken up in its regular sequence. This list should be limited

to defective items, and such items as might properly be called "omitted," by reason of the fact that the proper time for attending to them has passed.

824. CHECKING PERCENTAGE OF COMPLETION.

In connection with reporting percentages of completion at this time, the inspector should carefully check up the superintendent's percentages, and call attention to the matter if there is any material discrepancy. If the work is 50 per cent complete, or less, the inspector should approximate the cost of the work in place and determine the percentage relation to the completed job. If the work in place is more than 50 per cent complete, it is frequently more accurate to estimate the "cost to complete" and determine the percentage of the total cost. For instance, if a plumbing job is roughed in, and ready to have fixtures set, it is very simple to determine the cost of fixtures plus setting cost, which will complete the contract. This same method is applicable to heating and electrical work.

825. PRELIMINARY INSPECTION OF PLUMBING.

Compare the runs of underground drain piping with the drawings, check sizes, depths, and location of cleanout manholes; ascertain if proper test of cast-iron piping has been made and certificate for same is on file.

Check galvanized, soil, waste, drain, and vent piping; advise superintendent to make small deviations from the drawing requirements if necessary to obtain proper clearance of pipes, beams, etc.

Check fixture outlets, compare centers with dimensions given in Uniform Plumbing Specifications, and make sure that fixture outlets are properly spaced as indicated on the drawing. Particular attention must be given to spacing of fixtures indicated on one-eighth scale drawings, as frequently the workmen scale the drawing and locate the fixtures accordingly and when installed they are likely to be out of center of the marble stalls, etc.

Check downspout gooseneck connections and roof flashings around vent pipes. See that lead gooseneck is smoothly formed and free from dents.

Examine water piping; check sizes of same, and see that all piping is properly graded. Examine location of hot water tank and its piping, and see that unnecessary traps are not made in hot-water or return circulation piping. The heater and tank connec-

tions are shown partly on the drawings and partly in the Uniform Plumbing Specifications, and it is frequently necessary to consult the plumber to determine the best method of arranging the piping.

See that all piping is properly supported and that vertical pipes have sufficient clamps. Check small water piping to fixtures and assist the workmen in locating the branches in the best manner; avoid unnecessary runs of small piping in toilet rooms, and reduce the finished nickel-plated brass piping to a minimum.

826. INSULATION TEST OF WIRING.

When the lighting fixtures and the conduit and wiring work are in separate contracts, the inspector may find that the wiring system is sufficiently advanced at the time of preliminary inspection to permit of making the insulation test. In that event the test should be made, and if found satisfactory, the superintendent should be so advised in order that he may permit the connection of lighting fixtures to the building wiring as soon as conditions demand.

827. TEST OF HEATING APPARATUS.

Test of heating apparatus includes a test of the entire heating system under 10 pounds gauge pressure steam. Safety valve should be set as required by specifications. Report should state whether the system was noiseless in operation, whether water level remained constant or fluctuated, and whether circulation was satisfactory. The hydrostatic test of brick-set boilers is required to be made by the superintendent before same are bricked in (646) and this test is *not* to be repeated unless specifically called for in the letter of instructions.

828. FINAL INSPECTION OF HEATING APPARATUS.

The following points should be carefully checked:

That the boiler, piping, valves, and radiation are of specified size, checking each radiator by counting sections, measuring heights, etc., for which purpose the inspector should provide himself with a standard list of radiation, as rated and approved by the office; that all mains and piping are properly graded, and that ends of returns (one-pipe system) are the specified distance above the water line of the boilers; that air valves of the approved type are provided; that piping is properly supported with approved hangers, bands, and clamps; and that each radiator heats up properly and frees itself of air and condensed steam in a reasonable time.

829. FINAL INSPECTION OF PLUMBING.

Previous instructions (825) on preliminary inspection of plumbing work apply to final inspection so far as the work is visible.

Check all fixtures with specification and carefully examine and operate each fixture; see that flush tanks are properly adjusted and that water-closet and urinal and slop-sink bowls flush as required. Test all faucets and see that same are rigidly locked to slabs, etc.; examine all fastenings and give each appliance a hard pull, and if possible to pull fixture or appliance loose by hand, require same to be properly fastened. Remove several expansion bolts at random, and ascertain if proper bolts have been used. Also remove several closet flange bolts and make sure $\frac{5}{16}$-inch tapped bolts have been used, as required. Examine water-supply piping over flush tanks. Frequently sufficient clearance is not provided to install nonconducting covering without interfering with the operation of pull levers.

830. SMOKE TEST OF PLUMBING.

If smoke test of system has not previously been made and certified, require same to be made. After the workman has signified that the system is filled with smoke or vapor, require him to open several of the vent-pipe plugs above roof. If smoke issues at all vents on roof, the system is properly filled. Examine all fixtures, particularly siphon jet bowls. Any leak or defect can be detected by the presence of smoke. Have the plumber plunge the seal out of water-closet trap to make sure of the presence of smoke in the immediate soil pipe. It is good practice to close toilet-room doors and allow the smoke to remain on the system for about one-half hour before inspecting the fixtures.

831. TESTING WATER HEATER.

Have hot-water heater fired up (if of the coal type), and find out if water circulates quickly between heater and tank. Have automatic damper regulator adjusted and set. Test circulation of hot water by successively opening each faucet in the building. If gas heater is used, test operation of automatic control and have same adjusted and set.

Where steam coil is used to heat water, proceed in testing as follows: During 10-pound steam heating operating test, open hot-water faucets, and run off water until the water in tank is near street main temperature, open hand-valve controlling steam sup-

ply to automatic valve and set automatic valve wide open. Adjust air valve or steam return and see if coil frees itself of condensed steam in a reasonable length of time without hammering noises in piping. When water reaches required temperature have steam valve adjusted to close.

It is important to have the several automatic controlling devices on one tank operate at the same opening and closing temperatures.

832. FINAL INSPECTION, GAS PIPING.

In making inspections of gas piping, either an original system or a renewal, the inspector should remove a sufficient number of caps to assure himself that no salt water or similar agent has been introduced into the piping for the purpose of closing leaks.

833. FINAL TEST, WIRING SYSTEM.

When separate contracts are involved, wiring should be tested for insulation before fixtures are connected and again after connection, and results stated in main report. The specifications fully cover this feature.

834. TEST OF ELEVATORS, ETC.

Other apparatus, such as elevators, refrigerating plants, steam boilers, vacuum cleaners, etc., should be tested as set forth in the specification and tabulated records of the results included in the report.

835. FINAL INSPECTION, LIGHTING FIXTURES.

Even when shop inspection has been made, the workmanship of all fixtures should be carefully examined at the building. Castings should be examined for quality and hand finishing. The fixture arms and parts should be examined for close fitting and neat work. The sockets should be concentric with the spun holder and have proper position with respect to reflector as shown by detail. The inspector should assure himself that the approved make of glassware has been furnished, that the globes are of proper diameter, and reflectors are the specified height from floor.

On combination fixtures the gas burners should be examined to see that the by-passes are in good condition. If possible the burners should be tried to be sure they are free from dirt, etc., and properly regulated.

Check up location of fixtures with schedule; note whether connections to gas piping are properly made as specified; whether electric connections in canopy are properly made and protected; whether pendant switches are properly wired up and operative; whether finish has been injured in shipping and putting up, and if so, to what extent; whether drop fixtures are plumb and at proper height, and brackets at right angles to walls.

836. FINISH OF LIGHTING FIXTURES.

Lighting fixture contractors are required to finish the fixtures uniformly in accordance with samples supplied by the office. Each inspector is given a set of samples showing light oxidized brass, and oxidized copper finish, which he is required to carry with him and use wherever applicable, i. e., where special approval of finish has not been made and approved samples sent to the building and to the contractors.

837. DEFECTS PREVIOUSLY REPORTED.

When an inspector returns to a recently completed building for final inspection of any contract not completed at time of final inspection of the main contract for mechanical equipment, he should, without specific instructions, check up the mechanical equipment work and state in his report whether or not all defects and omissions previously reported have been corrected and supplied, giving a detailed list of the items remaining to be completed. If any defects have developed since the final inspection he should also cover that feature.

838. SHOP INSPECTIONS AND TESTS.

Shop inspections cover a wide range, and the nature and extent of the particular duties required will be explained in the letter of detail. Instruments required in connection with shop tests are shipped by the office to the point of duty.

Immediately upon arrival at the factory, the inspector should make such arrangements with the manager, or some responsible representative, as will enable him to carry out his instructions expeditiously, while avoiding any unnecessary inconvenience to the shop management.

839. DATA OF SHOP TESTS.

In reporting tests, inspectors must give complete data, including name of building for which the material or appliance is intended,

size, capacity, rating, etc. (where this information is applicable), together with all instrument readings taken, also a brief statement of the performance of the appliance tests, with definite recommendation as to acceptance. Data sheets should bear date of test, and be made in duplicate.

840. SHOP INSPECTION OF LIGHTING FIXTURES.

Shop inspection of lighting fixtures and similar materials not involving the use of measuring instruments should cover the weight and quality of material used, and its conformity with the approved drawings or designs. Special attention should be given to the quality of workmanship. Where one piece is shown as representative of a number required, the sample should be without apparent defects of any nature, as a sample is usually better than the average of the output that it represents.

841. SHOP INSPECTION, BOILER TUBES.

All boiler tubes are measured by the Birmingham wire gauge, and this governs in connection with work placed on the market by this office even when the specification does not so state. In the event of having to use a Brown & Sharpe wire gauge, reduce the reading to Birmingham gauge by means of the conversion table on page 29 of Kent's "Mechanical Engineers' Pocket-Book."

842. INSPECTION OF REPAIR WORK.

Completed and occupied buildings are under the charge of a Federal official who serves as custodian. On arrival at a building in his official capacity, the inspector should make himself known to the custodian, who will permit him to have access to the building files, which should contain all necessary information relative to existing contracts, etc. Before proceeding with an inspection, the inspector should acquaint himself with the terms of the contract in question, and make careful study of the plans and specifications governing the work.

If any other mechanical equipment contracts not covered by his instructions are in force, the inspector should report on them also.

843. REPORT ON REPAIR WORK.

The requirements of paragraph 821 are to be followed so far as relates to the notations on the first page of report, i. e., name of city,

inspector's name, brief of subject matter, etc., with the addition of the contractor's name, as "Final inspection Carroll contract," and if the contract is a large one or many defects are found the general plan of submitting main report and separate itemized list (821) should be followed.

844. GENERAL INSPECTION, MECHANICAL EQUIPMENT.

Aside from the special duties which bring the inspector to the building, it is his duty to give consideration to any matters of mechanical equipment to which the custodian may call attention or to which the inspector's own observation leads him, and if general inspection of the mechanical equipment has not recently been made the inspector should make such inspection even in the absence of specific instructions. He should consult the custodian in regard to repairs and improvements that appear to be necessary and advise the office of the custodian's wishes in the matter, whether the inspector coincides with him or not.

The demands upon the appropriations are so heavy that only the most necessary repairs and renewals can be made, and the inspector should bear this fact in mind in submitting his recommendations.

General inspections are made from time to time to ascertain the condition of the mechanical equipment and the nature and extent of repairs or alterations required. A thorough examination should be made of the plumbing, heating, wiring, and lighting systems, elevators, and any other mechanical equipment, and complete information furnished relative to required repairs, alterations, or improvements, accompanied by such sketches, drawings, or specifications as the case may require. An estimate of the cost of the work recommended is always required.

845. INTERNAL EXAMINATION OF BOILERS.

General inspection of heating system does not include internal inspection of boilers unless specifically mentioned in the inspector's instructions or it appears necessary because of external indications of weakness or deterioration. Inspection and test of all high-pressure boilers and such low-pressure boilers as can be reached with the limited force available are made annually at the close of the heating season under special instructions.

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846. COAL.

A definite recommendation must be made as to the kind of coal that should be used, giving its cost in the local market.

847. PERIODIC INSPECTION OF ELEVATORS.

This should cover a careful examination of all cables, a trial of all automatic and other safety devices for proper setting and reliability in action, and a thorough examination of the controller, hoisting and overhead machinery, tanks, pumps, and other apparatus required for operation of elevator plant.

Separate specifications should be prepared for elevator repairs unless they are of a very minor nature, as contractors who do that kind of work are not usually equipped for making repairs in other trades, and the including of all work in one specification makes it difficult for the custodian to get good competition.

848. WORKROOM FURNITURE LIGHTING.

The inspector should, without specific instructions, ascertain whether the furniture lighting in post-office workroom is satisfactory; and if not, include the necessary work (based on office drawings) in his specifications.

849. IMPROVEMENT OF GENERAL LIGHTING SYSTEM.

Attention should also be given to the subject of general illumination and the following points reported on:

Whether gas and electricity are being used economically; whether any carbon lamps are being used; whether the proper-sized tungsten lamps to obtain the best results are used; and whether lamps in use are suitable for the voltage available.

When the furnishing of proper lighting facilities would entail an expenditure of more than $1,000 the inspector need not prepare specifications to forward with his report, but simply call attention to the conditions, so that the office may take the matter up when other work will permit.

850. SPECIFICATION TO CUSTODIAN FOR BIDS.

If the repairs recommended by the inspector are of an ordinary character and extent and clearly necessary, and the inspector's estimate of cost does not exceed $1,000, he should prepare speci-

fications (as many copies as can be typewritten at one process) and forward one copy to the office with his report, which must contain an estimate of cost, retain a second copy for his own information, if he so desires, and hand the remaining copies to the custodian, with the request that he obtain and forward competitive bids based thereon.

"General condition" sheets for use in making up specifications in such cases are furnished to inspectors.

851. SPECIFICATION TO OFFICE FOR CONSIDERATION.

When a greater expenditure than $1,000 is involved, the inspector should prepare an outline specification, and sketches if necessary, and forward same to the office, with all data necessary for preparing complete specifications and with report and estimate of cost. "General condition" sheets are to be omitted.

852. ENGINEERING FORCE.

Except by special direction, reports should not include recommendations relative to the increase or decrease of compensation paid to any member of the engineering force of a building; but if it is the inspector's opinion that any particular employee is underpaid or overpaid the matter should be taken up with the custodian, who, if he coincides, will make the necessary recommendation to the office.

It is, of course, the inspector's duty to call attention to any evidences of inefficiency, lack of experience, or negligence on the part of such employees.

853. EXIGENCY EXPENDITURE.

In carrying out official instructions it sometimes becomes necessary for an inspector to incur an expense for rental of testing instruments, etc., where the use of same is made necessary by an exigency. Such expenses should be submitted separately on voucher form No. 8600 (not in the travel voucher), accompanied by a statement as to the necessity for same.

When employment of labor is immediately necessary in connection with an investigation (as for opening up a drain), the custodian of the particular building should be requested to have the work performed (under direction of the inspector) and to submit in the usual manner itemized exigency voucher, initialized by

the inspector if the charges are proper and reasonable and the voucher is prepared and certified during his stay at the building. A statement on the subject should also be included in the inspector's report, and if the voucher has not been presented to him for check the report should include a statement as to what would be a proper charge for the work.

854. APPROPRIATION FOR "MECHANICAL EQUIPMENT."

The appropriation for "Mechanical equipment for public buildings" reads as follows, and inspectors should familiarize themselves with its provisions, with special reference to preparing proposal sheets for repair work:

"Mechanical equipment of public buildings: For installation and repair of mechanical equipment in all completed and occupied public buildings under the control of the Treasury Department, including heating, hoisting, plumbing, gas piping, ventilating, vacuum-cleaning and refrigerating apparatus, electric-light plants, meters, interior pneumatic tube and intercommunicating telephone systems, conduit, wiring, call-bell and signal systems, and for maintenance and repair of tower clocks; for installation and repair of mechanical equipment, for any of the foregoing items, in buildings not reserved by vendors on sites under the control of the Treasury Department acquired for public buildings or the enlargements of public buildings, the total expenditures on this account for the current fiscal year not to exceed ten per centum of the annual rentals of such buildings. * * * That this sum shall not be available for the payment of personal services except for work done by contract, or for temporary job labor under exigency not exceeding at one time the sum of $100 at any one building."

855. INTERIOR LIGHTING FIXTURES.

Besides the work falling as a charge against the appropriation just quoted, the inspectors of mechanical engineering are charged with the duty of inspecting interior lighting fixture work.

856. SCOPE OF DUTIES.

Without special instructions, inspectors of mechanical engineering should not ordinarily go beyond the scope of the appropriations as hereinbefore indicated. If they find that other matters than the mechanical equipment require attention, they may call the custodian's attention thereto, giving him such technical information as they can supply in the case, provided this can be done without

materially encroaching on the time that should be devoted to the mechanical work. In special cases that seem to require it, they may prepare a report on the subject, which must be separate from the report on mechanical equipment.

If minor repairs chargeable to other appropriations (as sometimes in the case of down-spout repairs, etc.), are so closely connected with repairs to mechanical equipment as to require attention at the same time, they may be included in specification, with proper precautions as to segregation.

857. SEGREGATION OF PROPOSALS.

Special attention is called to the necessity of segregating proposal sheets where different appropriations are involved in general repairs, and to avoid confusion the following items should be noted as chargeable to the appropriation indicated (522 to 532):

(*a*) FURNITURE AND REPAIRS OF SAME.

General replacement of glassware on old lighting fixtures to modernize the system and improve the lighting facilities.

Glassware provided with new lighting fixtures (complete).

Interior lighting fixtures (complete).

Lighting fixtures for inclosed mailing platform.

Shades, shade holders and sockets in connection with general furniture lighting.

New desks and files cases (except standard shelving) and refinishing of desks, cabinets, and chairs.

(*b*) MECHANICAL EQUIPMENT.

Appurtenances for elevators and lifts, including lighting fixtures, and mechanical door operating devices.

Conduits, wiring, etc., for furniture lighting.

Extension of conduit and wiring system to a convenient point to serve any kind of special machinery or labor-saving device, such as motors, canceling machines, photographic apparatus, etc. (The cost of locating and connecting the instrument or appliance is for the consideration of the department or service furnishing same.)

Minor building repairs made necessary by reason of repairs to mechanical equipment, such as restoring walls, floors, etc. (Comptroller's decision, Jan. 22, 1914.)

Signal systems, including those for fire protection.

(*c*) OPERATING SUPPLIES.

Replacing broken glassware for old lighting fixtures.

Tools for repairs to mechanical equipment and compounds used for clearing pipes, etc.

(*d*) REPAIRS AND PRESERVATION.

Bronzing radiators when done in connection with painting rooms. (Comptroller's decision, Mar. 15, 1915.)

Downspouts (interior and exterior) to point where they connect with the general drainage system.

Exterior lighting fixtures, including those for weather bureau platforms and mailing sheds (but not for inclosed mailing platform).

Globes for exterior lighting fixtures.

Judges' desk, platform, and rails, and repairs to same, in court rooms, including all kinds of partitions.

Wire screen inclosures throughout completed and occupied buildings.

Standard shelving.

(*e*) VAULTS AND SAFES.

Post-office lock boxes, vault doors, vault shelving, keys for lock boxes and repairs to same.

858. NOT AVAILABLE FOR MARINE HOSPITALS, ETC.

As the appropriations "Furniture" and "Operating supplies" are not available for quarantine stations, marine hospitals, mints, branch mints, and assay offices, inspectors should not include in specifications for repairs in such buildings any item that would properly be chargeable against either of these appropriations in other Treasury buildings.

SECTION IX.

CIRCULARS.

Various circulars and circular letters have been issued by the department and the office which are of interest to superintendents. As these circulars are revised or reissued from time to time, they are not printed as a part of this "Manual"; but if a superintendent should not receive with the "Manual" a full set of the then current issues of the following circulars, they will be sent upon request.

901. ASSESSMENTS AGAINST UNITED STATES PROPERTY.

Department circular 24 (Office of the Supervising Architect), dated April 6, 1914, regarding municipal assessments, taxes, charges, etc., against Federal buildings and sites, for paving, sidewalks, sewers, etc.

902. CLAIMS FOR MATERIAL AND LABOR IN FEDERAL BUILDING WORK.

Department circular 36 (Office of the Supervising Architect), dated April 4, 1916, regarding the rights of persons furnishing materials or labor for the construction of public buildings.

903. EIGHT-HOUR LAWS.

Circular letter No. 1 (Office of the Supervising Architect), dated July 12, 1913, giving the opinions of the Attorney General of the United States and the Solicitor of the Treasury regarding the so-called eight-hour laws of August 1, 1892, June 19, 1912, and March 3, 1913. Where in these opinions the views of the Attorney General and the Solicitor of the Treasury appear to differ, the opinion of the Attorney General will be followed.

904. LOCAL MATERIALS AND LABOR.

Circular letter No. 11 (Office of the Supervising Architect), dated November 20, 1913, setting forth department's attitude toward requests to specify a particular material or to require that a special class of labor shall be employed in public building work.

905. TRAVELING AND SUBSISTENCE EXPENSES.

Department circular No. 31 (chief clerk), dated June 25, 1914.

906. USE OF FEDERAL BUILDINGS OR THE SITES THEREOF.

Circular letter No. 10 (Office of the Supervising Architect), dated November 8, 1913, forbidding any non-Governmental use of any part of a Federal building or site thereof without specific authority from the department, etc.

907. VOUCHERS.

Sample set of vouchers showing how same should be prepared, executed, certified, etc.

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